302 HP DODGE V8 By Don Francisco

CAR CRAFT

The SHOW-HOW Magazine

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CAR CRAFT

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COVER

We've got two cover cars this month. The nifty pickup belongs to George Benson, who built the car over his father's protests. Now he can't pry Benson Sr. out of it. The other car is Jack Stewart's MG, the first one of is type we've ever seen. We even tell you how Jack built the car. Stories appear on pages 26, 30 and 56 respectively.

Ektachromes by Rickman and Zelenka

"CISCO" says:

THE letter usually ends something like this: ". . . the engine has been bored .125 inch oversize, it has a 3/8 inch stroked camshaft, dual carburetors, and a Super grind camshaft with 72 degrees of overlap. Now this is what I would like to know: Why does the engine run so roughly at low speeds and why can't I drive the car under 40 miles per hour in high gear?"

A good question, and not at all unusual. To find an answer, let's make a quick analysis of the facts involved. First: The engine has a larger than standard bore. What is there about a large cylinder bore to cause an engine to run roughly at low speeds? Nothing at all; in fact, a larger than standard bore should help the engine deliver more than its stock torque rating at low speeds.

Second: the stroke of the engine's crankshaft has been lengthened 3/8 of an inch. What is there about a longer than standard stroke to cause an engine to run roughly at low speeds? Nothing at all; in fact, this is another factor that should enable the engine to deliver greater torque at low speeds.

Third: Dual carburetors were installed. What effect do dual carburetors have on low speed performance? None, if they are correctly adjusted and synchronized. An engine with multiple carburetors may not take full throttle readily at low speeds but it should run smoothly at any speed.

Fourth: The engine has a Super grind camshaft with 72 degrees of overlap. What does a camshaft with 72 degrees of overlap do to low speed performance? To put it mildly, it has a devastating effect. The engine probably runs like a bomb above 3500 revolutions per minute but at any slower speed it runs as though it can't make up its mind which way to turn the crankshaft. This rough running condition at low speeds is the result of excessive valve overlap.

Valve overlap is the period of crankshaft rotation during which the intake and exhaust valves of a cylinder are open at the same time. It occurs while the piston is just finishing an exhaust stroke and beginning the following intake stroke—the intake valve starts to open before the piston reaches the top of its exhaust stroke and the exhaust valve closes after the piston has started its intake stroke. Overlap is increased by opening the intake valve earlier and closing the exhaust valve later.

Theoretically, the purpose of valve overlap is to create a scavenging effect in the cylinders of an engine operating at high speeds. By having both valves of a cylinder open for a short period of time at the beginning of an intake stroke, the high velocity of the exhaust gases flowing past the exhaust valve supposedly creates a low pressure area around the intake valve. This low pressure induces the fresh fuel and air mixture to flow into the cylinder at a faster than normal rate and thereby force out of the cylinder part of the exhaust gases usually left in the cylinder after the exhaust stroke is completed. Some of the fresh mixture is inevitably lost, between the time it starts to flow past the intake valve and the time the exhaust valve closes, when it follows the exhaust gases out of the cylinder; however, this loss is of little consequence when one is seeking maximum performance.

At slow engine speeds the same overlap condition exists but velocities of the gases flowing past the intake and exhaust valves are so slow that the overlap becomes a detriment rather than a help. Under these conditions exhaust gases are blown past the intake valve and into the induction system when the intake valve starts to open, and exhaust gases are forced back past the exhaust valve into the cylinder by pressure in the exhaust system when the intake stroke begins. This, of course, dilutes the fresh mixture in the

(*Continued on page 66*)

BRIEF AND TO THE POINT:

287 Words from the Editor

JUST about any and every kind of automotive sport has come to the U.S. and some have originated here. That is, every kind except one and now that one has started up and has become a pet of ours. The sport we're referring to is automotive trials, a method by which the ordinary wild-eyed lead-foot is quickly separated from the guy who can really handle his car.

We're so het up about these trials that we're going to devote quite a bit of space to giving you the full picture, covering trials from definition to the kind of machinery best suited to the sport and how it's built. For the first story take a look at pages 16 to 21. Hope you'll like it as much as we do. After reading these, grab a gander at Honker on page 65; if it weren't for the single seat and lack of fenders, the lad would appear to have the right idea—for the time being, at least.

Those who are following our Hot Ignition Show-How feature might be interested in the fact that a kit is available for this operation. Consisting of a Harman Collins cam, drilled plate, magneto points, wiring and directions, it'll sell for about $20 to $25. Dean Moon, who wrote the story and shot the pictures, makes it. The kit might be the answer for those who can't get some of the equipment mentioned in the story. If you're interested, drop us a line.

'Nother thing; if you happen to have an old race car kicking around in your back yard, you might be interested in pages 42 through 47. Might find a new use for it.

THINGS TO COME

WE'RE loaded to the hat with goodies to come. Our biggest trouble is that we don't have enough space to toss 'em at you as fast as we'd like. You may have noticed that Chuck Eddy isn't with us this month. It's for good reason, though. Chuck has been living in close harmony with Young Henry's two new Ford Fours, 131 and 172 cubic inches respectively. This is as we promised last month when we made mention of the fact that Les Nahamkin had come with some interesting stuff on the four-bangers.

Also upcoming is some considerable data on how to make a late model Detroit automobile handle; such things as new shocks that take the "Ow" out of bounce, stabilizer bars and other such items that let you skate around corners with the best. First up is a story by Don Francisco on shock absorbers and how to mount 'em. Next comes a story on new types of accessory stabilizing equipment, real suspension goodies, not gimmicks.

Fiberglas, too, is coming in for its share of space as per your demand. For the basic facts, hop out and grab a copy of the new TREND book, *Manual of Building Plastic Cars*. By the time you've gone through that, we'll be giving you specifics on the cars.

SHOPPING AROUND

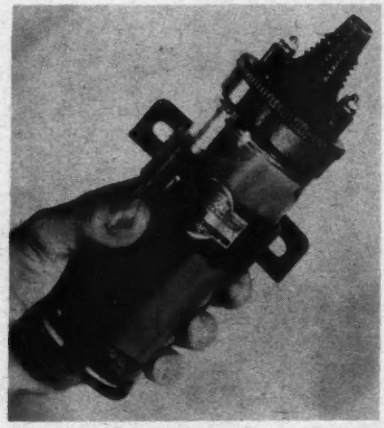
HANDLE INSULATOR

Here's a new, do-it-yourself way to get shock-proof, sure-grip tools. The stuff is a plastic liquid in which you dip your tool handles, heat them, and get a handle that has a tough, rubber-like and permanent covering. This covering will give you complete protection against electric shocks, and a secure, comfortable grip to work with. With

a single dip you can place a coating on a tool handle that is thick enough to give you more than enough voltage protection for all home electrical work. Each 1/32 inch of coating gives you protection against electric shocks up to 200 volts, and with one dip you can get a coat over 1/4 inch thick. Tools can be retreated as many times as necessary to get a desired thickness. Application is simple. Just heat the tool handle; dip it into the plastic; remove it slowly and heat once more to harden the coating. You'll find complete instructions on the enclosed jar. The price is $2.00 postpaid; send order to: Ecker Industries, Box 456-CC, Minneapolis 1, Minnesota.

IMPORTED OIL COIL

ILLUSTRATED here is the "Oil Coil." Instead of the usual 10,000 to 12,000 volt output of the ordinary automobile coil, this British product puts out a full 30,000 volts.



Better mileage, easier and faster starting, are claimed. Built like a power-line transformer, the windings are surrounded with clear oil to keep the coil cool. Since an unbreakable glass case is used, the windings of the coil and the insulating oil are clearly visible through the case. The price is $19.95 in 6 or 12 volt types from Newhouse Automotive Industries, 5805-K E. Beverly Blvd., Los Angeles 22, California.

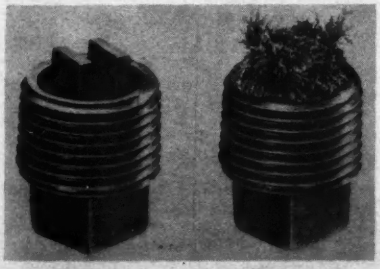
TIMING LIGHT

HERE'S a neat item if you're the type that goes for absolute accuracy in valve setting for top performance. The tool is a timing light that acts in much the same manner as a dial indicator. The only difference is that the light blinks at the correct setting, which can be anywhere you want from 0 to 30 degrees before or after top dead center. Nice thing about it is that there are no dials or mathematics to worry over or guess work. While designed primarily for the flathead

Ford from '32 to '53, the unit can be used on other makes and on some OHV engines. A similar model, designed for all overhead engines, will soon be available, the distributor tells us. Price is $19.50, postpaid in U.S. or Canada. Individuals and dealers can write for information to Fullhouse Automotive Specialties, P.O. Box 42031, Los Angeles 42, Calif.

MAGNETIC PLUG

THE magnetic drain plug is not exactly a new item but it's worthy of mention nonetheless. These plugs can be of considerable value in a newly rebuilt engine in which there is bound to be some material left floating around after grinding, boring or honing operations. The plug attracts floating iron or steel particles and holds them at the drain hole, making removal easy and also giving a clue to the extent of metal fouling. Plugs are available for crankcase, transmission and differential in sets of three for $2.00 with an extra plug for overdrive units for an additional 75 cents. Specify year, make and model of car when ordering from the Car Equipment Co., P. O. Box 414-CC, Van Nuys, Calif.



ALUMINUM PRESSURE PLATE

YOU can go pretty light on flywheels, down to about 15 pounds in fact. However, up until now there wasn't much you could do with a pressure plate except use it to hold the clutch disc in place. The stock items weighed as much as, or more than many racing flywheels. Paul Schiefer has

come up with an answer to this problem with a bronze faced aluminum pressure plate heat treated to 34,000 pounds per square inch. The bronze facing is sprayed and bonded right to the aluminum in a manner similar to his light flywheels. Schiefer recommends the plate for trucks as well as drag, sports and race cars. For price and other information, write: Schiefer Automotive, 3192 CC 30th Street, San Diego, Calif.

LETTERS

WE GOOFED

Dear Sirs:

I have just read the March issue of CAR CRAFT and I believe you have made a slight error in your article on "Body Sectioning" Part I, page 28.

You said the car in the photos was a '51 Olds, but I believe it is a '50 Olds 88 Holiday. Since my parents own one identical in every respect I feel very sure it is a '50.

Wasn't the car being sectioned done by Valley Custom Shop? If it's the same car I have in mind, there was an article in one of the summer issues of Hot Rod Magazine about it. I believe it was called the Polynesian by the owner. If it is the same car, I am certain Hot Rod Magazine stated that it was a '50 Olds.

Sincerely,
Phil Hays, Jr.
Bartlesville, Okla.

How true.—Ed.

30 LASHES FOR US

Dear Sirs:

May I congratulate you on a fine magazine. I look forward to it every month, and I haven't missed a single issue since the first issue of HONK appeared last year.

I was just looking over the March '54 issue of CAR CRAFT and noticed a minor mistake. I thought I'd point it out just to clear things up. In your article on "Body Sectioning" you said that the car being sectioned is Jack Stewart's '51 Olds 88. If I'm not mistaken, I believe the car in the photographs is the "Polynesian" during construction. This car happens to be a '50 Olds 88 Holiday and not a '51. As I have said, this is only a minor mistake, but you stated twice in the article that it was a '51 "88" so I thought I'd point it out in case you overlooked it.

I certainly enjoy your fine magazine, and I hope you'll keep up the good work. That was a great article in your January '54 issue about George Cerny's Olds. How about some more articles on Olds? Thanks for a great magazine.

Sincerely,
Sunny Rackley
Atlanta, Georgia

You're right, Sunny—It is a '50.—Ed.

HELP COMING

Dear Sirs:

I enjoy your magazine very much; especially the various articles on customizing and "Torch Tips." Your CAR CRAFT is very popular among the guys up here.

Come Spring, I would like to start building a Fiberglas sports car over the chassis of a '39 or '40 Ford convert; with considerable help from dad and my friends. I would like to have it look something like the Chevrolet Corvette and keep the same Ford engine in her, only soup it up. My idea would be to place wire mesh over an all steel frame and Fiberglas over that.

I intend to get a great deal of help from TREND's new book, the "Manual of Building Plastic Cars." As you can see I will be faced with many problems. So could you please give me a few tips.

Dick Pliss
Milwaukee, Wis.

Just keep reading the magazine, Dick. Much dope on this sort of thing coming up.—Ed.

LOST

Dear Sirs:

Please send copies of the October and November issues.—I have been a constant reader since you first published HONK!; but when you changed the name I lost track of the magazine until December. I now have all the issues except the two requested.

I've gotten many ideas for my '32 Ford roadster from reading your magazine.

Thank you,
Floyd Wolfgang
Philadelphia, Pa.

Thank YOU.—Ed.

WHAT'S A DEUCE?

Dear Sirs:

I have just bought the February issue of CAR CRAFT, and think it's the best rod magazine on the market, I also like its pocket size.

In reading the article on Don Chapman's cover car roadster on pages 34 to 37, I would like to know what kind of a frame was used or what is meant by Deuce rails. Also I would like to know what kind of a frame you would recommend to be narrowed so a '29 A Model A coupe body can be channeled over it.

Again, I would like to compliment you on a fine magazine.

Thank you,
James Shemenski
Martins Ferry, Ohio

"Deuce rails" is a hot rodder term meaning a '32 frame, Jim. We undoubtedly should have made this clear in the story. We'll clarify it now. The term "Deuce" invariably pertains to anything of Ford manufacture during the year 1932. When one speaks of rails, one means the side pieces of a frame. Anyway, forgive us our language, we sometimes get carried away.—Ed.

OMATIC SPEED SHIFT

Dear Sirs:

Your "Fordomatic" articles (Feb. & Mar. 1954) were great, as are all your articles. I think I can add one more thing to the O-Matic info though.

Mine drops into Lo at about 25 mph after moving the selector to the Lo position at a higher speed. To get it into Lo at any speed up to 45 or even 50 mph is easily possible. No it doesn't rip the insides out either. Say at 40 mph we move the selector to Neutral and wind the engine up just like double clutching the old standard shift and then immediately pop it down into the Lo position. You're in! It may take a few tries to get a smooth shift but it's good to know in the mountains with a trailer on behind.

There may be a lot of O-Matic owners glad to know this. I found out one day by experimenting.

Thanks for a swell magazine that covers just enough of all the right things and the size. Perfect.

Yours truly,
Patrick A. Fitzpatrick
U. S. Naval Air Station, Texas

We're wondering whether you're in Lo or Intermediate. It seems that if you get any lugging ability at that speed, you would be in the mid range since 45 mph in Lo range would indicate about 5000 rpm, an impossibility with a stock engine. Get yourself a tachometer, Pat, and give it another check. With proper adjustments on your linkage, you should be able to kick down into intermediate range without shifting. Check the April issue for proper settings.—Ed.

SPORTS ROD

Dear Sirs:

Thanks for all the *practical* "How-to-build-it" articles of the past year. Keep up the good work.

In the December '53 issue of CAR CRAFT, you mention a future article on the suspension system of the McAfee Siata. Please look at the A. C. "Ace" in The Autocar (Oct. 16, 1953), and The Motor (Oct. 21, 1953). Notice how this suspension system simplifies frame construction.

If CAR CRAFT could publish *construction details* on this chassis, then by using the Willys "F" head engine and the Allied Fiberglas body, a car could be built of American parts which would almost duplicate the Austin-Healy 100.

Thomas Maguire
Oklahoma City, Okla.

Depending on the builder, it might even be better.—Ed.

By
Don Francisco

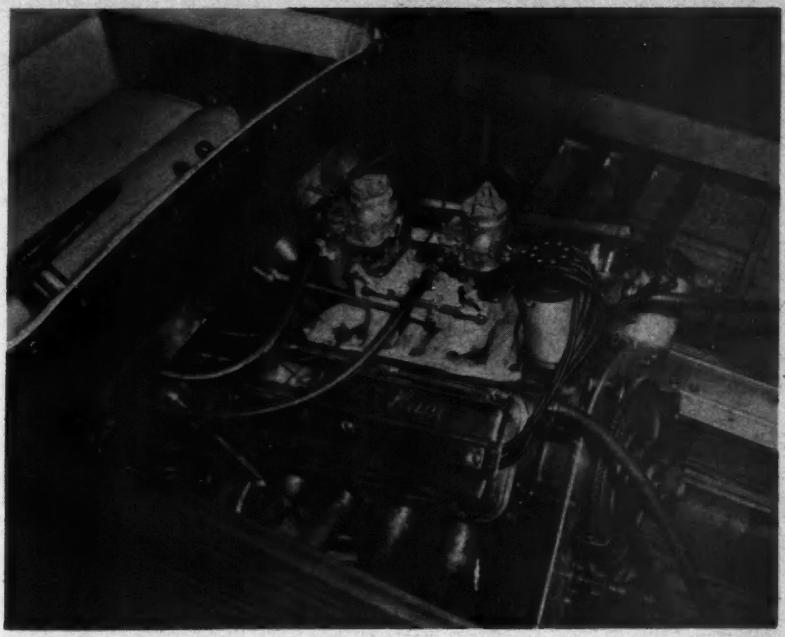
BLISTERING DODGE V8 CRANKS OUT A COOL 302 BHP ON ALKY, 285 BHP ON GASOLINE

THE official record for the crackerbox class is 72 miles per hour, clocked over a measured mile. With one burnt piston, *Hot Ice*, the nation's number one crackerbox, has been clocked at 73 miles per hour. However, this was over a quarter-mile course, not long enough for a record. But now, with a few improvements made to its engine, *Hot Ice* is ready to set a new record of no less than 80 mph. Mighty big words, these, but after watching the powerplant that hurtles *Hot Ice* through the water develop an even horsepower per cubic inch on aviation gasoline, we're inclined to believe that Carl Maginn, the man who spoke these words, knows what he's talking about.

Carl is the boat's owner, driver, and mechanic. He is, therefore, the person mainly responsible for *Hot Ice's* successful attempt in 1953 to place first in the crackerbox division of the American Power Boat Association, the governing body for motorized boat racing in the United States. To win this position Carl and his boat competed in 12 races in A.P.B.A. regions 11 and 12. These regions include California, Arizona, and Nevada. In 1954 *Hot Ice* will carry competition number 1.

Carl lives in Glendale, California; his vocation is general contractor. We like to think that his success with *Hot Ice* is largely attributable to experience gained in 1937 and '38 when he was running a Model B Ford roadster on California's Muroc dry lake. We don't know whether it was while he was

(*Continued on page 12*)



Set up and ready to roll in cracherbox competition, Hot Ice's engine is equipped with two Strombergs calibrated for aviation gasoline. Flywheel is Wilcap boat unit.

Owner Carl Maginn checks the engine over before run on Wilcap dynamometer. Engine is set up for gasoline, produced 258 bhp.

With Hilborn injectors as shown here, the engine turned up a hefty 302 horsepower on alcohol fuel. Set-up could be used in car.

HOT ICE continued

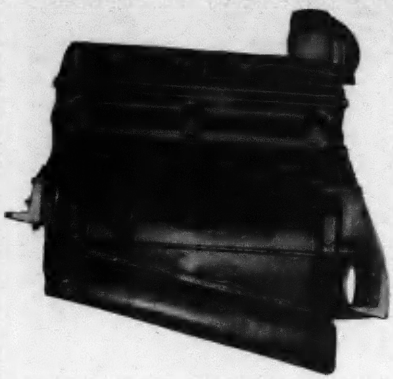
Maginn changes jets in dual Strombergs prior to one of the test runs. With alcohol fuel and dual carburetor set-up the engine produced 270 horsepower at 5500 rpm.

(*Continued from page 10*)

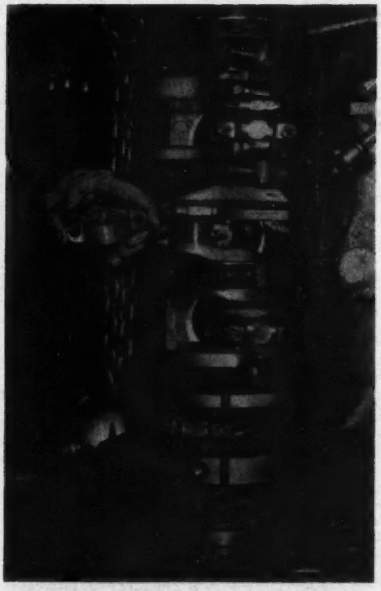
running in hot rod competition, or later when he became interested in boats, but somewhere along the line Carl found that careful workmanship is an absolute necessity if one is to achieve any degree of success in the highly competitive sport of racing.

The 14 foot hull that was later to be named *Hot Ice* was built by Fred Wickens, Inglewood, California. At the present time the boat is propelled by a 12-18 two-blade propeller. The designation "12-18" indicates that the prop measures 12 inches from tip to tip and has a pitch of 18 inches. A propeller's pitch is the distance the propeller would move through the water per revolution if it were free to move unhindered. The propeller shaft is driven at crankshaft speed through a coupling attached to the front end of the boat's engine—A.P.B.A. rules do not permit gear boxes or V-drives in crackerboxes. Fuel is carried in a tank located at the extreme rear of the hull, between the cockpit and transom. Air pressure, supplied by a hand pump, feeds the fuel to the engine's carburetors.

Hot Ice's power plant is a 1953 Dodge "Red Ram" V8 modified to its present condition at a price well within the $1250 limitation specified by the A.P.B.A. for engines in this division. To comply with this rule the list price of the engine itself, plus



Oil pan on Dodge V8 was enlarged to take 10 quarts of oil and reshaped to fit contour of bottom of boat when cocked back.



Connecting rod bearing removed after dyno tests showed little evidence of rough use. Rod nuts are of the self-locking variety.

the list prices of all accessories, including the starter, generator, carburetors, ignition system, and any special parts that are used and extra labor required for their modification or installation, must not exceed $1250. The factory hp rating for the Red Ram is 140 at 4400 revolutions per minute. Stock piston displacement is 241 cubic inches; bore and stroke are 3 7/16 and 3 1/4 inches, respectively. It has hemispherical combustion chambers with inclined valves and a compression ratio of 7.1 to 1. Valve lifters are of the zero lash hydraulic type. The Red Ram's crankshaft is a steel forging with five main bearing journals.

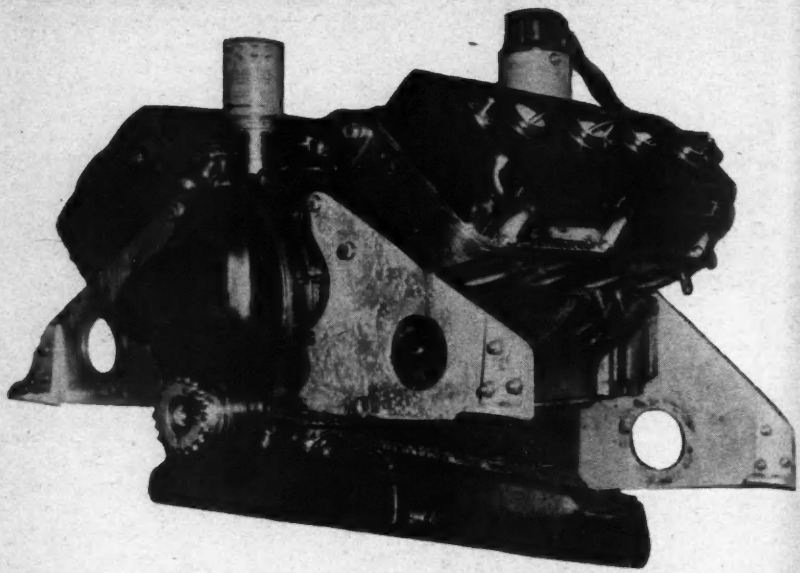
As his first step in boosting the engine's horsepower output Carl increased its displacement to 258 cubic inches by boring its cylinders .125 of an inch oversize to 3 9/16 inches. A.P.B.A. rules limit the displacement of engines in the crackerbox division to 267 cubic inches. J. E. three ring, dome head pistons were fitted to the cylinders with .011 of an inch clearance. These special pistons raised the engine's compression ratio to 12 to 1.

It is far more satisfactory with engines of this type to raise compression ratios by installing domed pistons rather than by milling their cylinder heads. Milling cylinder heads on an overhead valve V-type engine creates misalignment between the intake ports in the heads and intake manifold. Also, difficulties are created in the valve actuating mechanism of engines that don't have adjustable valve lash or adjusting screws in their rocker arms. This particular condition can be properly corrected only by shortening the rocker arm pushrods an amount equal to that removed from the heads.

Head milling can be the cause of a far more serious condition than either of these, however, where cylinder heads with hemispherical combustion chambers and inclined valves are concerned. In heads of this type the lower edges of the valve seats are quite close to the open sides of the combustion chambers. Removing material from the gasket surfaces of the heads brings the valve seats still closer to the edges of the chambers, resulting in a possible source of trouble, especially if the seats and ports are to be enlarged for oversize valves.

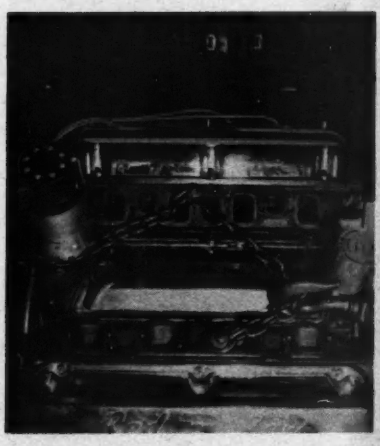
(*Continued on page 15*)

HOT ICE continued



Front and rear motor mount plates used to support engine in boat were cut from flat aluminum stock. Sprocket on front end of crankshaft is part of shaft drive.

Valve lash is easily adjusted by changing the length of the adjustable push rods. Intakes are harder to reach than exhausts.



The intake ports in Maginn's Dodge have been greatly enlarged and polished. Scintilla Vertex mag is set for 36° advance.

(*Continued from page 13*)

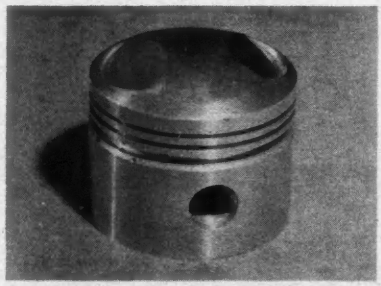
The crankshaft's connecting rod journals were ground and bearing inserts selectively fitted to provide .0035 of an inch clearance. New main bearing inserts were align bored to a clearance of .003 of an inch. These clearances are on the loose side but the inserts appeared to be in perfect condition after considerable running on an engine dynamometer. A factor that undoubtedly contributed a great deal to the excellent bearing condition is the optional equipment full-flow oil filter Carl installed on the engine. The filter, identical to those used on Chrysler and DeSoto engines, bolts directly to the cylinder block. Filters of this type filter all the oil delivered by the oil pump before it reaches the engine's bearings. By filtering the oil in this manner only clean oil is delivered to the engine's lubricated parts—wear producing dirt and metal particles are trapped in the filter. The value of such a filter is immeasurable as far as bearing wear is concerned.

The oil pan was enlarged to hold ten quarts of oil and shaped to conform to the limited space between the cylinder block and the bottom of the boat. By increasing the crankcase capacity to ten quarts the necessity for providing a means of cooling the oil was eliminated. High oil temperature can become a problem with boat engines because the oil sump is submerged in the hull where it is not cooled by a flow of relatively cool air. S.A.E. 40 oil is used in the engine.

A Wilcap aluminum boat flywheel de-

(*Continued on page 60*)

Experimental battery box bolted to transome holds 12-volt battery. Weight shift improved the handling ability of the boat.



J. E. piston of the type used in Maginn's engine. Slug is of solid skirt type. Reliefs in domed head are for valve clearance.

Bare engine compartment of the boat shows light aluminum stringers which support engine mounts. Note placement of exhausts.

TRIALS for the U.S.

FIND yourself a good, hilly farm or ranch. Then look for the roughest section of the area and lay out a road, or, rather, track, exactly the width of one automobile. Above all else, make sure that the road has plenty of blind turns, climbs all the hills at completely impossible angles and has at least one mudhole at the bottom of a dip.

After you've done this, post observers with stop watches at about 10 of the worst sections which you have previously measured off. After you've done all this, invite your friends to take a timed tour around your new road, knocking off points for every slip of the wheel.

You have now established all the elements of an activity the motorcycle lads have been running for years but which has only recently become an activity for four wheeled vehicles . . . on these shores, that is. The English have beaten us to it and have had a ball in the process. The activity is aptly named "Trials," and that's just what it is—a series of trials for driver and car that quickly separates the ordinary hot shoe from the really skillful driver. The beauty of it is that it can be held anywhere at any time of the year and at a minimum of expense.

Recently the first trials to be held in the U.S. was staged at Stanley Ranch, Castaic, by the California Chapter of the MG Car Club of America. Everybody with a set of wheels was invited to run. Invitations were sent to every car club in the California area. The meet was given the blessing and sanction of the California Council of Clubs, scheduling body for much of the amateur auto racing and club activity in the California region. Came the day and everything from a Volkswagen bus to a '37 Packard touring car and a Model A Ford painted with the U.S. racing colors of blue and white showed up. The amazing thing was that out of 54 entries, 49 finished.

AMERICA T[illegible]ES TO THE WOODS

Top finishers were:

Place, Driver, Passenger, Make, Points Lost

1. C. Whitney; I. Whitney; MG TD; 592
2. L. Allen; R. Gardner; MG TD; 683
3. D. Coe; H. Hagevore; MG TD; 713
4. D. DeHaven; M. Steckler; MG TD; 734
5. W. Stone; F. Williams; MG TD; 773

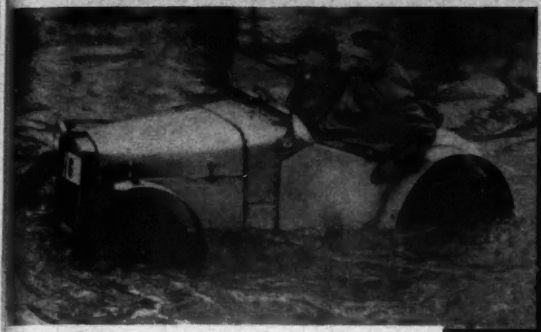
Team Trophy:

Lockheed Sports Car Club
G. Krull; MG TC
C. LeClaire; MG TD
L. Allen; MG TD
Total points lost—6788

(*Continued on page 64*)

ENGLAND

The difference between English and American trials courses is largely one of terrain and climate. The English, blessed (or cursed) with damp weather most of the year, run their courses through mud, wet leaves and river beds. Comfort, as these pictures indicate, is for the faint hearted. Ahead of the U.S. in experience, the English builders have developed their cars to the

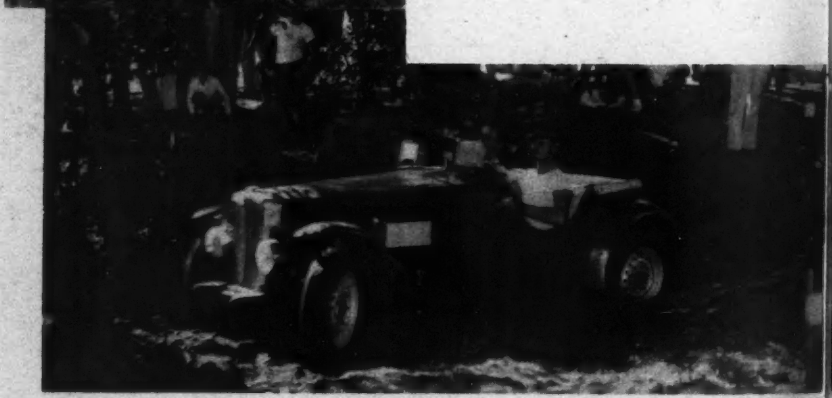


Photos Courtesy
"The Motor" England

point of near perfection for the rough treatment involved. Components are mainly Austin, British Ford and MG, the Model A's of England. All are inexpensive and easy to build. Similar cars can easily be constructed from such American cars as the Model A or early Chev. New 172 c.i. Ford Four is an excellent source of power for use in rugged trials cars.

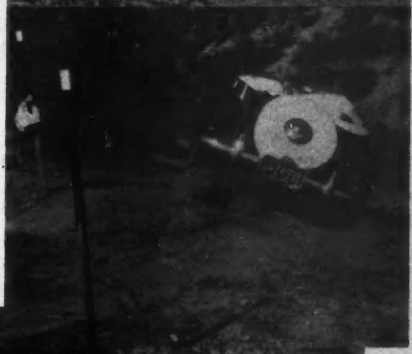
For U.S. Trials *TURN PAGE*

UNITED STATES



For comparison, unfolded on these pages are America's first auto "Trials." Although the wet and sticky terrain found on the preceding pages is not present, it was justly made up for with hard, slippery up- and down-hill grades, wrong-cambered turns, man-made mudhole (upper right-hand corner) and a twisty creek bed of deep sand thrown in for kicks. Most of the

U.S. Photos by Eric Rickman



cars that took part were MG's, but those who did enter larger U.S. products had just as much fun, if not more, and finished with the average. White Model A (upper left) was purchased, painted, entered and run in the event for the grand total of $40, proving that trials are destined to become one of America's greatest sporting events and also one of the least expensive.

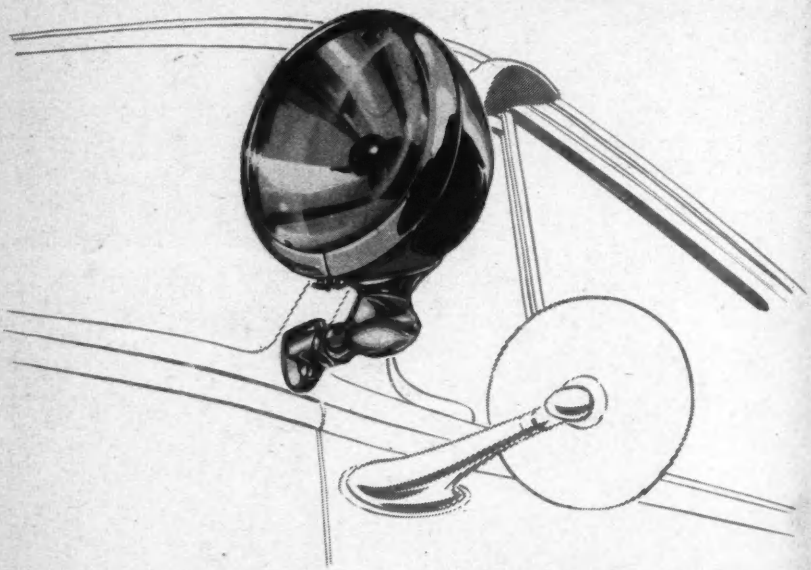
TURN TO PAGE 64

TORCH TIPS

by Dick Day

Photos by George Barris

INSTALLING SPOTLIGHT IN WINDSHIELD POST



DUAL spotlights are not only traditional on custom cars, they also play an important part in the restyling of the car itself. When spots are adapted to the windshield posts, it lends the car an even, step-down design between the top and the fenders.

On prewar cars, installing spots in the windshield post offered no problem, but on late model products the posts usually serve as chrome trim and are much more fragile and narrower in size. This, to the average layman who contemplates personal installation, the lights possibly might impose a problem. Lack of the correct knowledge could easily turn up a cracked windshield or a totally damaged post.

Even Detroit's assembly lines, possibly for the sake of speed and the easy way out, install spotlights in the upper forward corner of the doors. This method is not the greatest because the light must remain in a vertical position, and if by chance it is turned down while the door is closed a dented hood can result, if the door is opened.

However, the spotlights can be installed in the windshield posts on late model cars —and simply. Here's how it's done:

(Installation by the Barris Kustom Shop)

1. First step consists of determining the position. Place the outside mounting bracket at a low center position on the windshield post, keeping in mind a clean, unobstructed path for the spotlight's shaft to fit through. The vertical position can be judged by eye, but the shaft hole should be centered on the windshield post.

2. If the outside mounting bracket does not fit the contour of the post, it should be ground to do so. Caution is needed here, for an unevenly ground bracket can cause the shaft hole to be incorrect when drilled.

3. After the position and contour is correct, mark where the mounting screws will strike and center punch for a drill guide.

4. Drill the two outside flange holes with a quarter-inch bit, making sure to drill deep enough for the length of the metal-screws.

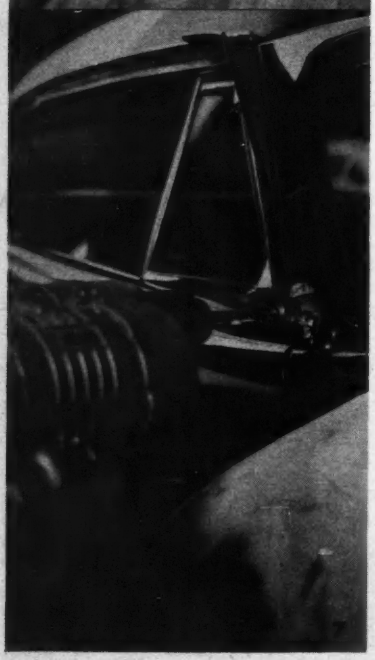
(Continued on next page)

5. *Insert rubber shaft bushing into bracket; bushing will be in the spotlight kit. Then secure bracket to post with metal-screws.*

6. *Special drill guide, which also will be found in the kit, is screwed into bracket to guide the drill through windshield post.*

7. *A high speed drill equipped with a ⅜" bit is used to drill through the windshield post. After drilling through the first plate of metal, check to make sure the inside wiring in post is clear of the drill bit.*

8. *When finished drilling, remove the drill guide. Disassemble the spotlight's inside handle and mounting brackets and insert the shaft in the hole. Shove the light to the inside and then securely screw the threaded nipple into the outside mounting bracket.*

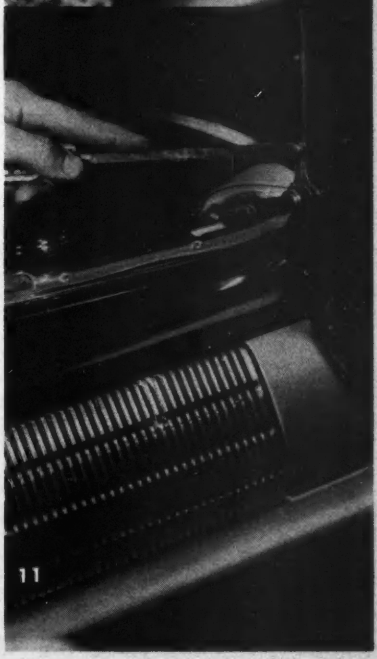


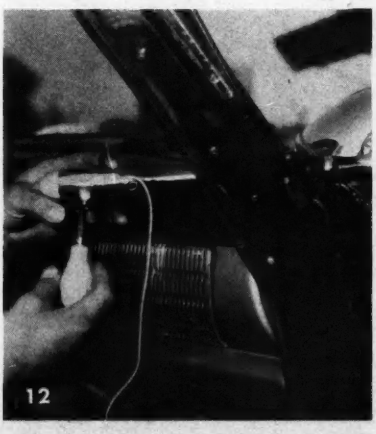
9. On the inside, slip on the inside supporting bracket and bend the bracket's arm to conform with the inside garnish molding.

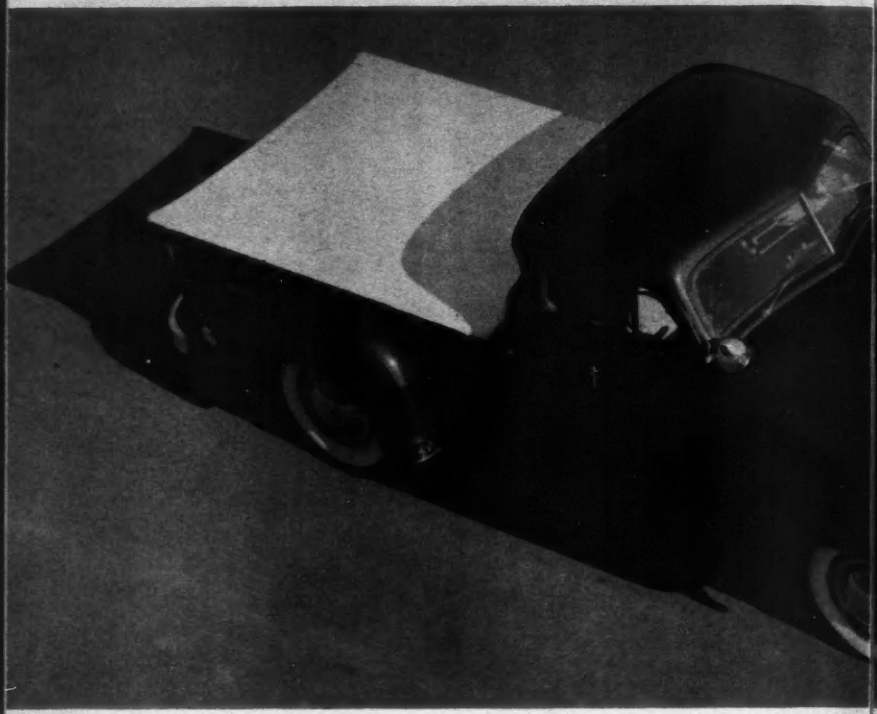
10. Mark and center punch hole. Use a 1/8" bit and a small, pistol grip electric drill.

11. Bracket is secured with a chrome metal screw. Inside adjustable nut can be tightened to control spotlight's swing action.

12. Assemble the inside handle and control knob. Slip wire through the support bracket and fit it closely along the edge of the dash. Attach wire to battery circuit of terminal.







WHEN A SON DONATED HIS CUSTOM TO

BUSINESS TOOK

WHEN Frank Benson, an 18-year-old student at Long Beach Polytechnic High School, bought a nearly new '52 half-ton Chev pickup to help his father in the family tropical decoration business, Papa was pleased.

However, when Frank began applying the torch to this nice, almost new adjunct to the business the paternal view grew a bit dim. "A truck is a truck, not a date wagon," was the opinion, loudly voiced, held by Benson Sr.

However, once the job was done it became noticeable that business was on an upgrade. What with other businesses tightening up this seemed strange. The upswing could only be attributable to Frank's attention grabbing pickup.

The customizing job is one of those piecemeal jobs, not a swift all-at-once bit of work. It was done bit by bit by Bob Hilton's Kustom Kraft Shop.

Starting from the nose, here is what was done. The hood was shaved and louvered, every piece of chrome being dropped at the wayside including the headlight rims which were given the frenching treatment. Rims from '52 Merc lights were used to replace

Photos by Bob D'Olivo

THE FAMILY FIRM

A PICKUP

the stock items.

Next came the top which was chopped four-and-a-half inches at the front and five inches at the rear, giving a slight rake to the rear. The quarter windows were then tunneled so that flat glass instead of hard-to-cut curved glass could be used. Twin spotlights were set into the windshield posts. All fabric fender welting was replaced with chrome stripping. Door handles were removed and replaced with electric solenoid latches.

The rear fenders also got the works. Cutting into the rear of each fender, Hilton formed a horizontal tunnel. Into this tunnel went a set of '48 Studebaker taillights. The effect is novel, practical and attractive. A rear gravel shield, an item not usually found on pickups, was formed and frenched into the rear of the bed. The outer contour fits snugly into the radius of the '49 Plymouth bumper.

Rather than go into heavy body surgery to get a lowering effect, Frank had previously sent the truck out to Van's Frame and Axle shop in Long Beach. There the front springs were set *under* the front axle with a shock mount welded to the 'U' bolts. The rear springs were re-arched, dropping the rear end an amount equal to the drop in the front.

When everything was completed on the body, the pickup was given a lush purple metallic paint job (*see cover*) and sent out to the upholsterer. Into the cab went a purple and white plastic interior, plushy enough for any custom car. Topping off the truck is a beautiful white tarp made by the same man that did the doorpanels.

In fact the cab of that truck is so attractive that Frank has a tough time pulling his once skeptical Pater out of it. For this family at least, business is better than ever.

The 1949 Plymouth bumper blends well with the multi-bar grille of the Chevy. '52 Merc rims were used to french headlights.

CONTINUED

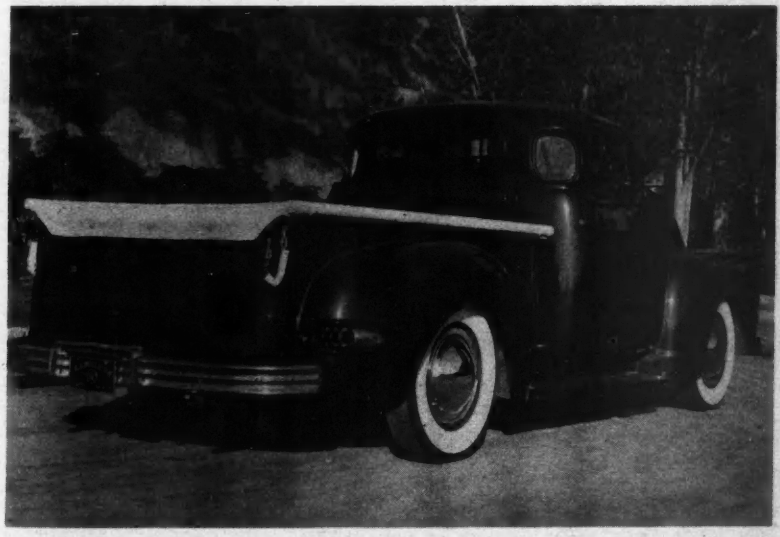
BUSINESS PICKUP continued

One of the most novel and unique treatments in taillight restyling is Benson's method of tunneling or boxing the '48 Studebaker taillights in the pickup's rear fenders.

With the top chopped and headlights extended, truck appears to have much more length.

When top was chopped, the rear quarter-windows received a good amount of attention. Each carries a tunnel or frenched motif.

Method used in the front for lowering was to adapt the springs to the underneath side of the axle; this dropped the truck 4 ins.



The truck appears squatty from all angles due to the radical chop and lowering jobs.

SOME guys are never satisfied. Take Jack Stewart, a 25-year-old Angeleno, for instance. Like so many of us, Jack is never satisfied with an automobile as the manufacturer delivers the beast. For the past 10 years or so, Jack has confined his efforts primarily to Henry's products and to the several breeds from the GM stable.

This can get very wearisome. It becomes very easy to run out of cars, money, or even worse, both. A national phenomenon saved Jack from going the full route. This was, strangely enough, the rapid spread in 1950 of the sports car craze. This rage left in its backwash large groups of MG's as Lord Nuffield struggled valiantly to keep up with the demand.

Finally even Jack succumbed and wound up with a nice, new and utterly stock MG TD. The only trouble was that everywhere Jack looked somebody was driving an MG, varying only in color from his newest acquisition. Sometimes they didn't even vary in color.

It got so that the only way Jack could spot his own car was either to tie a foxtail on it or paint it. He painted it. For a while this sufficed; he had the only MG in town with a red and white flame paint job. Solutions to such problems don't come that simply, however. Somebody else was bound to show up sometime with a flame paint job.

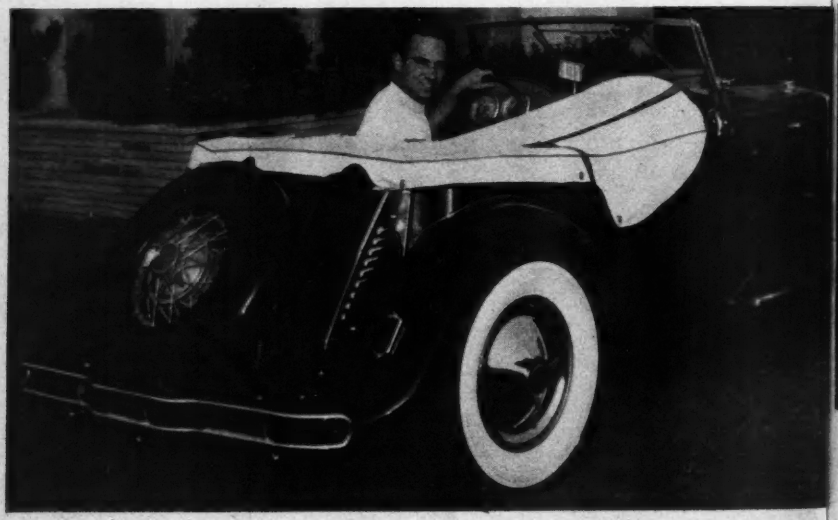
Jack decided to go the full route. He and George Cerny, one of Southern California's better body men, got together. Both felt that a custom job, to be successful, required a

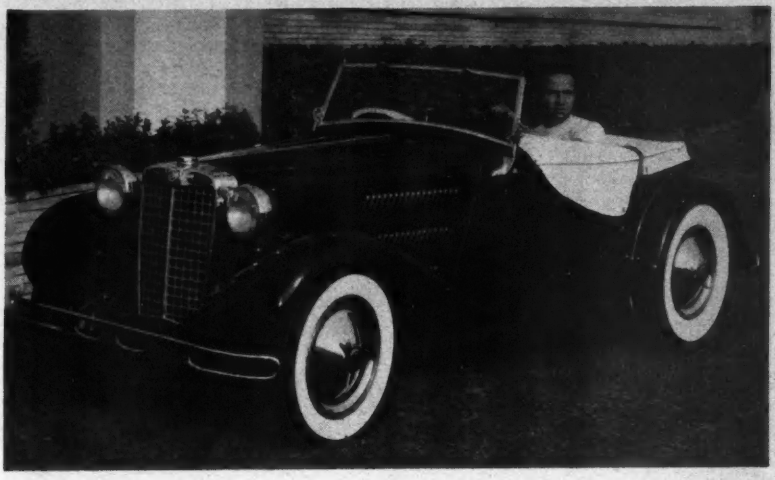
(*Continued on page 32*)

Basically it's still an MG, but with many minor and small restyling alterations Stewart has accomplished what you might call a successor to an American street roadster.

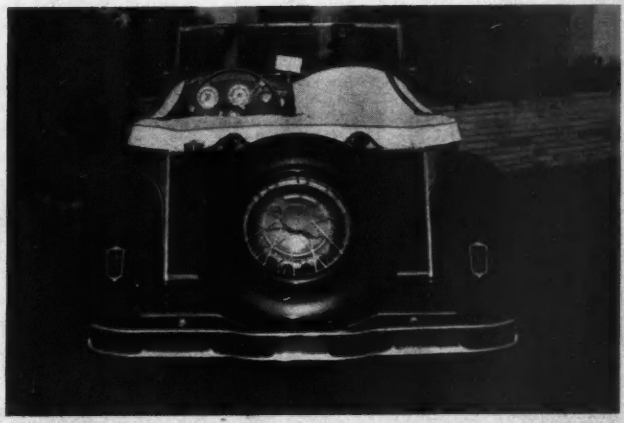
Photos by Eric Rickman

Boredom Leads to Many Things— In This Case It Led to a





NATURALIZED MG



The low slung appearance possessed by the TD is due to several customizing gimmicks such as 2-in. lowering blocks at the rear, cutting the coil springs at the front for a matching height, removing any design element that raises the bottom line of the car (running boards in this case), lowering spare tire 4 ins. Main contributor is belly pan.

NATURALIZED MG

(*Continued from page 30*)

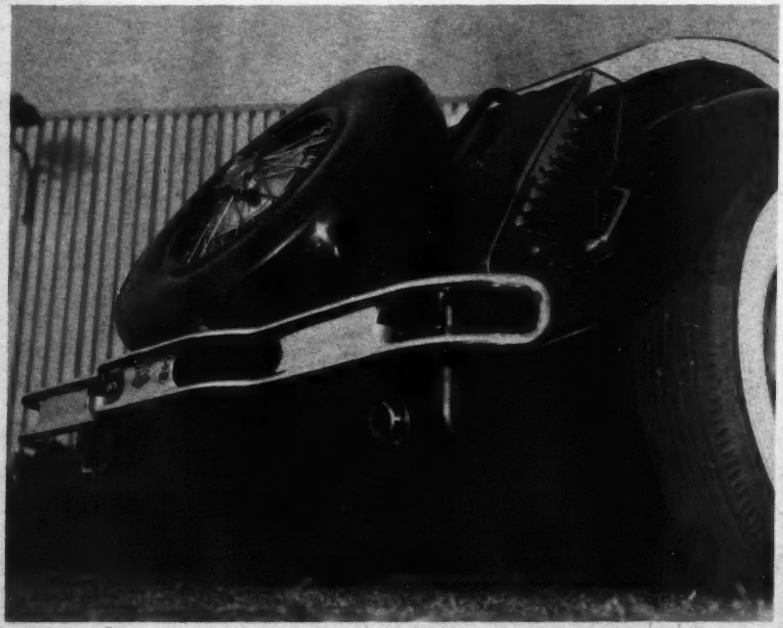
double-take to spot the actual changes. No one change should be outstanding, but still the car should look *different* some way.

With this in mind, George went to work. First to come off were the running boards. The back of each front fender was bobbed and trimmed into the body and the leading edges of the rear fenders were extended downward. The leading edges of the front fenders were really given the treatment. At the point where the fender itself dips back toward the wing, George filled the dip with sheet metal, changing the contour of the fender completely. (Ed. Note: To see how this was done, see pages 56-59. In the next few issues we will present step-by-step features on the metal work done to this car.)

Next came the major operation—a belly pan to cover the frame exposed by the removal of the running boards. Rather than merely attempting to hide the rails by means

Belly pan attaches to front frame horns and breaks at axle. Bumper was built from tubing and flat plates. Grille is accessory.

The belly pan at the rear has been boxed and bolts to the gravel shield. Louvers added and twin exhaust pipe tips have been rerouted to protrude through the belly pan.



After running boards were removed, the rear of the front fenders were faired or frenched into the body. Stock hood panels were discarded and solid ones made and louvered.

Spare tire was lowered to level of gas tank for appearance. Hubcaps are '53 Stude with accessory knock-off caps bolted on.

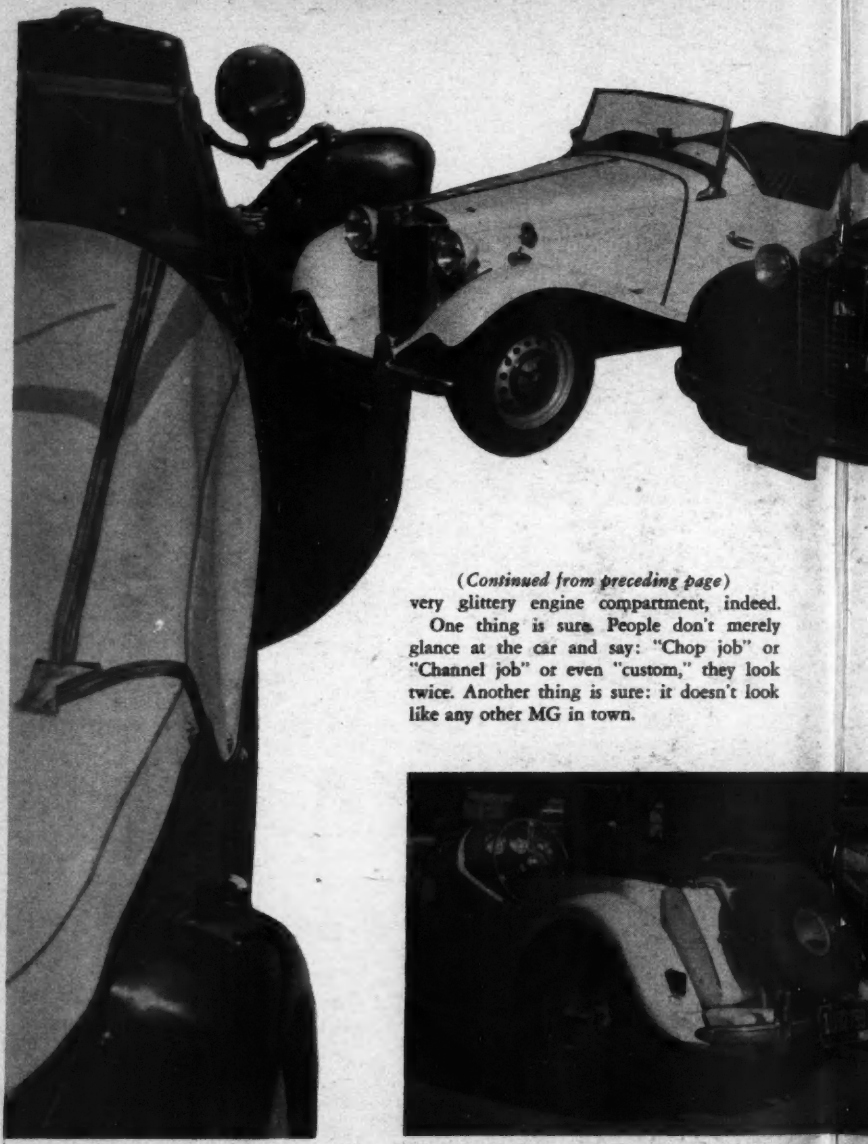
of a small panel, George went the distance and gave the little bear a full pan, front to back and side to side.

George also removed the hood sides and made a new set with a double row of short louvers on each side. Also given the punch treatment was the top of the hood. The stock bars in the MG grille were removed and replaced with a cast waffle-iron grille, one of several such accessories available from custom parts houses. Finishing off the job was a set of nerfing bar bumpers made up from bar stock and steel plate.

The engine was not left stock either. This got what the English might call a "Stage III" tuning job. Jack gouged out the ports and fitted the head with a set of MG Mk II oversize valves and springs. Compression was boosted by means of a .120 of an inch milling job, somewhat strenuous for street use. Also fitted was a Bell Auto Parts manifold carrying two glass-bowl Holley carburetors. Jack very wisely left the cam alone. For looks a cast valve cover, side cover and battery mount, all Bell equipment, were added. The result of all this is considerable more punch at the bottom end and a

(*Continued on next page*)

NATURALIZED MG continued



(*Continued from preceding page*)

very glittery engine compartment, indeed.

One thing is sure. People don't merely glance at the car and say: "Chop job" or "Channel job" or even "custom," they look twice. Another thing is sure: it doesn't look like any other MG in town.

For comparison purposes, Stewart's custom MG was lined up side by side with a stock MG TD of the same vintage. Changes not readily seen at first glance can be easily perceived here. Major noticeable change can be seen in the line of the front fender. Lowered spare tire is shown below.

BUILD YOUR OWN

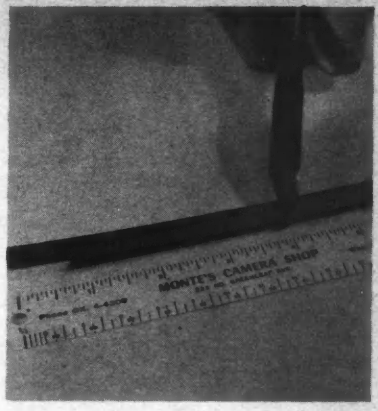
Hot Ignition

Photo Feature by Dean Moon

IN the April issue we covered the start of your Lincoln Zephyr conversion including the parts to be used and those to be discarded. We also covered the grinding of the distributor cam and the preparation of the Lincoln distributor case for the conversion. In this, the second of three installments, we will cover the conversion of the terminal plates from 12 cylinder to eight cylinder operation. The final installment next month will detail the reconstruction of the breaker plate, final assembly of the unit and tuning procedure.

Prior to converting the terminal plates, check thoroughly for cracks, missing aligning notches and carbon streaks. If plates are found to be in acceptable condition, work on same may begin. However, if there are any undesirable features about your plates, it's much cheaper in the long run to purchase new plates for the conversion, eliminating any chance of having to do the job over.

Strips for converting six-wire Lincoln terminal plates to four-wire use are made from copper or brass sheet, .020-inch thick, which may be purchased at any sheet metal shop. Trim the sheet into strips 5/16-inch in width by four inches in length as shown here.



Strips are readily formed over any cylindrical object such as an oil can, glue bottle, ink bottle or what have you, which is approximately 2" in diameter. Strips will uncoil about the proper amount for the 2½-inch desired diameter.

Pick-up prongs, which are brass, are given new surface by grinding wheel. This is done to all six prongs, at the same time retaining original angle or contour for rotor prongs. Remove only enough to give new surface on ends.
Wire-brush the complete outer surface of pick-up prongs. This makes for better soldering surface and adhesion.

Using a good acid-core solder for cleansing effect, apply liberal amount of solder on new pick-up strips. Solder is applied on both ends for about an inch and about one inch in the center of each strip.

CONTINUED

Hot Ignition continued

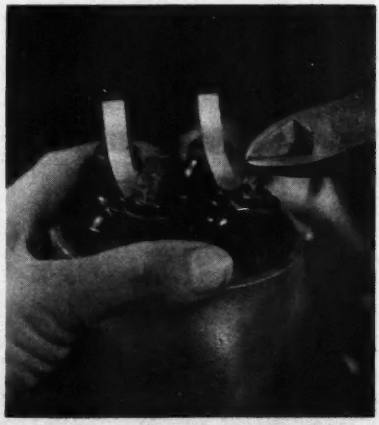
Using Lincoln Zephyr case as jig, which in turn is clamped in vise, agan apply a liberal amount of solder to plate prongs. Build up about 1/8" on center or shortest prongs, avoiding prolonged contact with soldering iron. Overheating of prongs results in cracking of bakelite surrounding same.

Using glove on one hand, hold strip as shown, and apply small amount of solder on inside of strip directly above center plate-prong. Aligning strip with all 3 original prongs, place soldering iron on top of strip and sweat strip to prong, again avoiding too long contact with iron. If strip at first is out of alignment, wait 'til strip, prong and plate cool before rebeating and realigning.

With center prongs soldered to strips, again select a cylindrical object, this time object desired should be as close as possible to 2½ inches in diameter. Using door or similar type spring over 2½-inch object to hold pressure on new pick-ups, apply heat to longer prongs and tension of spring on object will force strips and prongs into close contact. An extra amount of solder may be added for strength.

With strips now fastened on all prongs, remove excess solder from strips with bearing scraper, or sharpened three-corner file.

Using coarse emery cloth on same 2½-inch diameter object, rotate both object and cloth to remove the majority of the high spots. Finishing touches on the strips, with final polish and sanding of low spots, is administered with fine emery cloth.



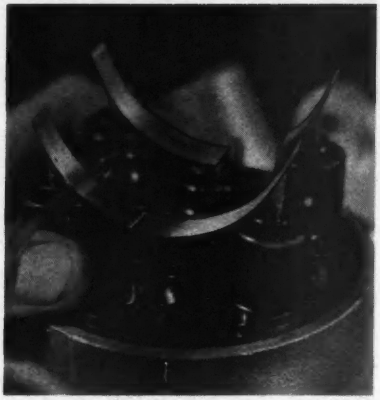
Excess metal at ends can now be trimmed off about ¼-inch from where outer prongs join strips.

CONTINUED

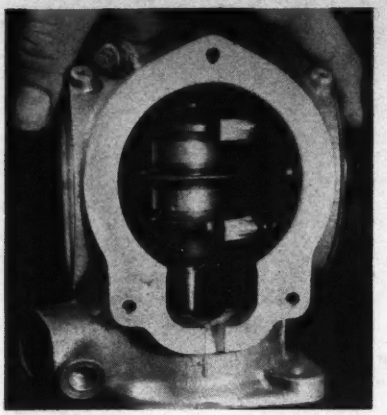
Hot Ignition continued

With hack-saw blade, part strip just to the left of the center prong which is just beneath it. This is on the strip facing or nearest to you. Parting of both plates and all four strips is the same.

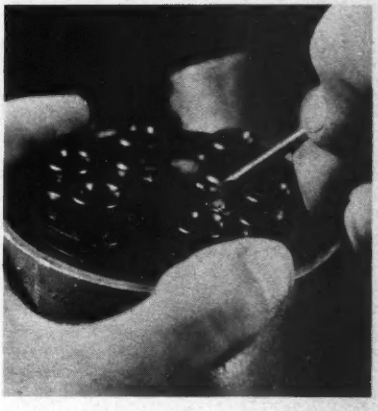
Again on strip closest to you, part strip about ½-inch to the left of previous cut and just to the right of left prong. Note parted strip in background.



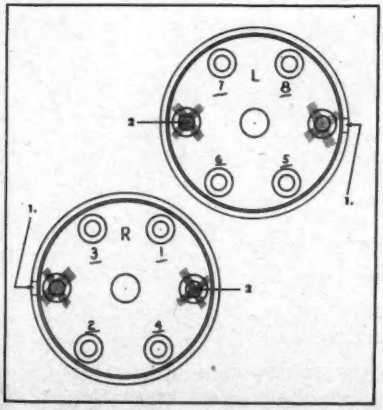
If rotor has not been previously ground, due to earlier rebuilding, grind 1/32-inch from ends of prongs. Rotor should also be checked for cracks and carbon streaks.



With rotor in place on distributor shaft, and shaft in base, install unit in Zephyr case. Inserting one of the newly converted terminal plates in its proper place, check rotor prong clearance, on new pick-up strips. If rotor prongs touch strips, hand file enough of prong to just clear the strip. Prongs should come as close to contact with strips as possible without touching.



With rotor and plates fitted for clearance, scribe new cylinder identifying numbers and "left" and "right," on terminal plates. Whenever possible use case for jig to avoid damaging plates.



Locator notches (1, 1) are on the opposite side of plate. These must be located as shown here to differentiate right and left plates. Center terminals (2, 2) are blocked off with tape. Be sure to mark plates "Right" and "Left."

RED HOT RETREAD

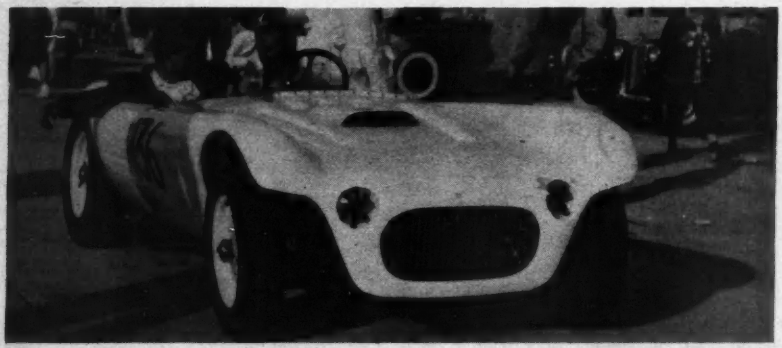
By John Christy

Photos by Rick

Criterion of whether or not a car handles

THE MASERATI THAT RACED AGAIN

Two crewmen bring the Maserati out on the line at Palm Springs race. Body of car is absolute minimum under latest international rules. Note extra wide wheel openings.



Driver Josef Sefcik gives Gene a report on the car after an early practice run; the verdict: "Sensational!" Negative camber shown in the rear wheels has been remedied.

is whether it will stay in a turn with Ken Miles (R). Sefcik proves Maserati will.

ROAD racing, like other forms of automotive sport, is getting more highly competitive each month. Cars that were champions a year ago are fast becoming "also-rans" as each race meet goes into history.

Part of this can be attributed to hot rodders moving into this field of activity. People are no longer satisfied to tell the dealer to wrap up a car and then dump it directly on a race course. Part can also be attributed to the manufacturers of the heftier breeds who are bolting together faster and faster equipment.

If one has 10 to 15 thousand dollars rattling around in one's pants pocket the problem is easily solved. One just writes to Enzio Ferrari or Mercedes and says "build me a race car." If one hasn't this kind of scratch, what then? There's only one answer: build it yourself. However, this also poses problems. Building a chassis to stick to the road under the kind of power that gets pumped through today's hot rodded engines can be a tough exercise in engineering—and an expensive one.

The neatest solution to this that we've yet seen is the answer which Gene Kopecky, of San Diego, California, came up with. Gene didn't have the equipment, time or money to build a chassis that would give him any kind of a chance in the engine class in which he wanted to run. However, on a trip to Los Angeles about a year ago, he came across a Type R1 Formula I Maserati chassis that had run in 1937 at Indianapolis as the Topping Special and more recently had failed to qualify when entered as one of the Grancor team in 1949. Since that time the chassis had been stripped of body, engine and rear brakes as it passed among several owners.

(*Continued on next page*)

Cockpit view reveals the purpose of this particular sports car—nothing but racing. "Office" layout remains same as in race car.

Big, wooly Chrysler with four-inch bore and stock stroke. Four Zenith carburetors dump fuel into double log intake manifolds.

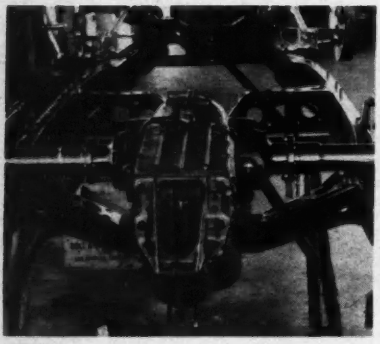
RED HOT RETREAD continued

This particular type of race car had been built under the 750 Kilogram formula of the thirties which stated that a Grand Prix car must weigh less than 1657 lbs. when stripped of tires, fuel and all liquids. This formula was put into effect by the FIA in an attempt to limit the tendency toward huge machines that were then in vogue.

The rule backfired, however. Builders made their chassis super-light, saving the weight allowance for tremendous engines. The result was that the chassis were actually years ahead of their time in design. One result was the fabulous Mercedes car that swept competition like the plague in the years just prior to World War II. Another

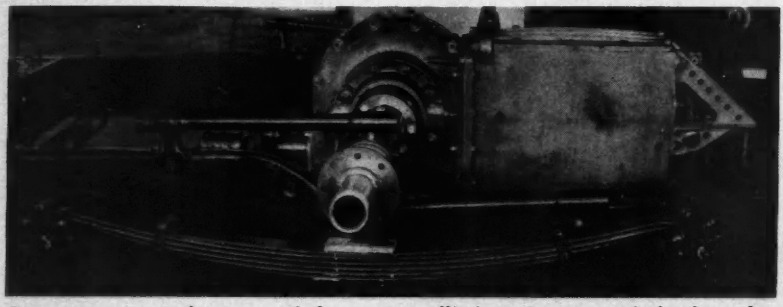
(*Continued on page 47*)

Gene shows Associate Editor Dick Day new straddle-mount fuel tank which was constructed out of aluminum sheet for the car.

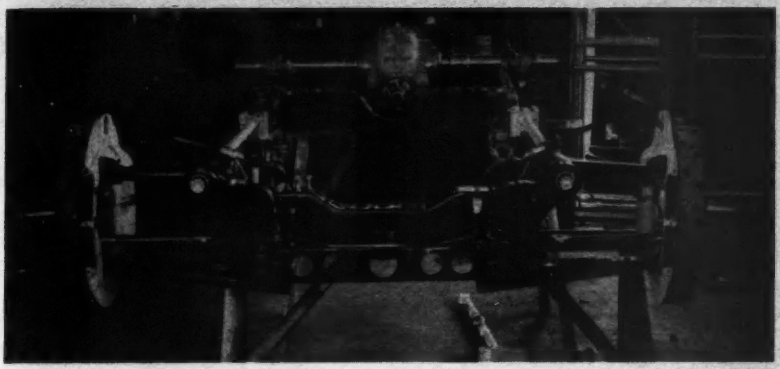


Rear view of rear-end mounted gearbox shows remote-control shifting levers operated by shift lever on center cross-member.

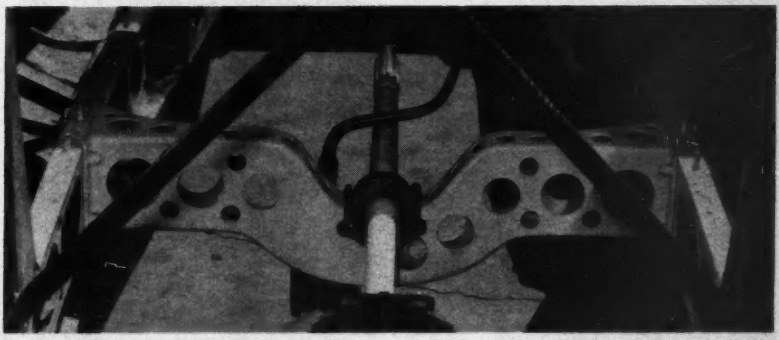
Maserati bell housing was adapted to rear of Chrysler engine by means of 3/8-inch aluminum motor plate. Note drive coupling.



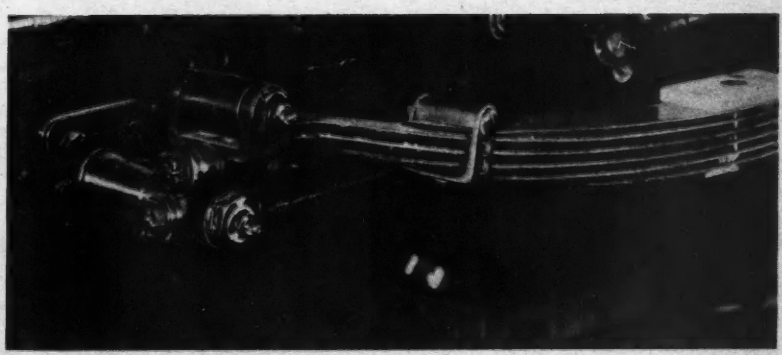
Rear suspension is by means of flat, quarter elliptic springs on articulated perches. Note the positioning of the locator bars which take up the torque on swing axle.



Super-light front suspension is full independent A-arm unit supported by longitudinal torsion bars. Wheels are not connected but steered separately by two drag links.

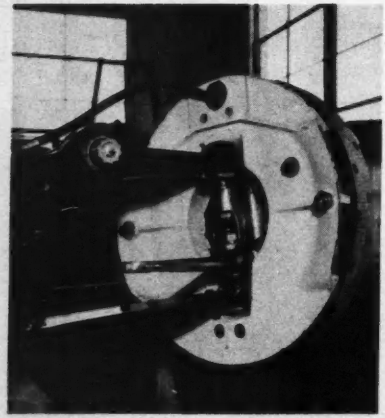


Center cross-member carries bearing for open drive shaft, builder's method of saving weight under 750 Kg formula. Member also carries remote shift lever and box.



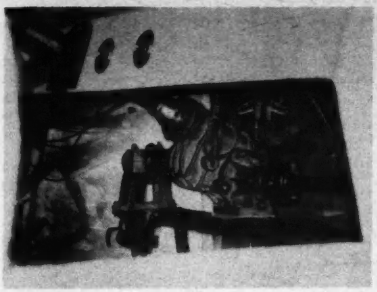
Spring perches for rear end are fully articulated to allow for changes in camber caused by operation of the full-swing axle. Solid perches would cause spring to twist.

Front torsion bars are mounted longitudinally along frame rails. It was slippage of these that caused car to be taken out of Palm Springs race by driver Joe Sefcik.



Ball joint suspension is widely hailed as "modern" feature. Entire unit is adjustable from inside hub and each A-arm end.

The Maserati brothers have always gone in for brakes with a capital "B." Binders on Gene's car are 16-inch ventilated Alfins.



Steering sector on car is in best Indianapolis and Grand Prix tradition, being a double acting unit working two drag links.

(*Continued from page 44*)

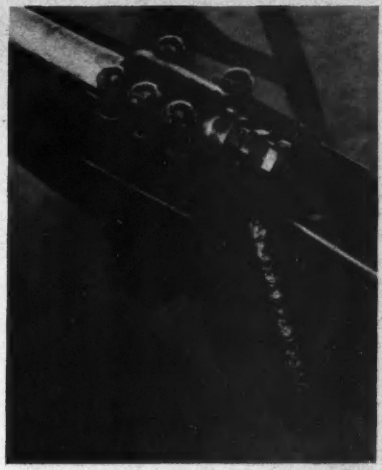
was the set of four Maseratis built for Indianapolis competition. It was in one of these, the Boyle Special, that Wilbur Shaw pulled his two-in-a-row act at Indianapolis. And it was a mate to this car that Gene discovered rotting away in Los Angeles.

Here was a ready made chassis of superior or at least equal design to the best and most expensive foreign sports cars running today. It had one great advantage besides this—it could be acquired without going into hock for life.

Gene lugged the car, or what was left of it, back to San Diego and set to work. Completely stripping the chassis, he and two others, Bob Jackson and Dean Meltzer, replaced every worn bearing and moving part in the car with standard metric replacements. Since the rear brakes were missing, Gene took a pattern from the cast alloy front brakes and had a new set cast, this being the one major-expense item of the whole deal.

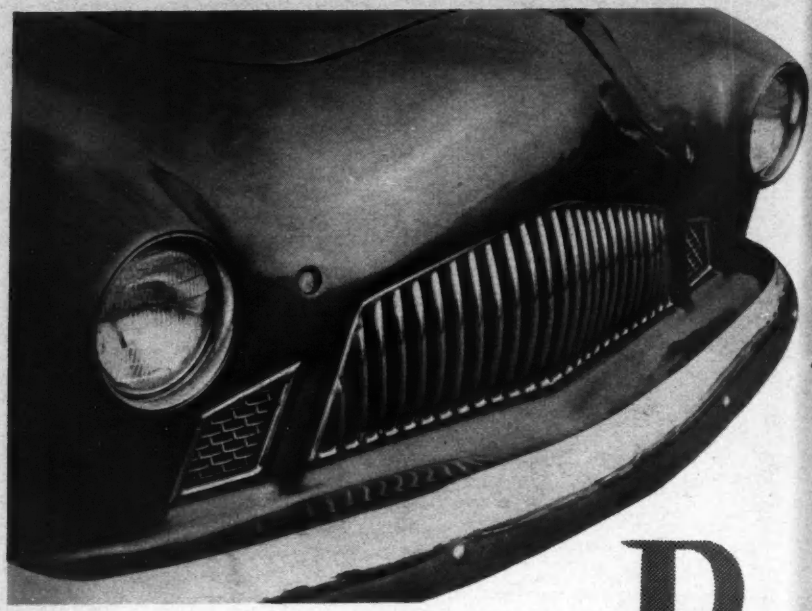
After refurbishing the chassis, the boys set to work on a big, wooly Chrysler. This was bored out to four inches, giving a displacement of 364.4 cubic inches. The flywheel was machined from a chunk of 75 ST alloy and fitted with the standard Chrysler ring gear and a Friction Master clutch. The heads were given the big valve treatment, $1\frac{15}{16}$ of an inch on the intakes and $1\frac{3}{4}$ on the exhausts; the ports were opened up to match. Compression was boosted to 9 to 1 with a set of high-dome Jahns pistons. A

(*Continued on page 61*)



Frame mount for torsion bar is infinitely adjustable but of insufficient strength to handle weight of car. It will be splined.

Another view of double-acting steering sector. Each sector shaft turns in an opposite direction eliminating need for tie-rod.



Rx

Photos by Tom Medley

YOU might say it all started at the 1952 Motorama in Los Angeles. It was here that Dr. Gordon Gilbert, visiting from his home town of Phoenix, Arizona, first saw a sectioned Ford.

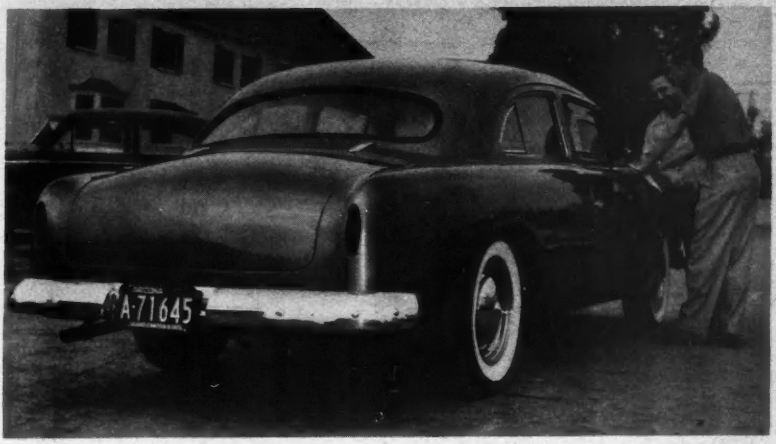
The good medic went home with visions buzzing around in his head and within a few weeks had transferred these to paper. *His* Ford, however, was not merely to be sectioned. This was to get the full treatment: sectioning, top chop, filling and, last but by no means least, a good hefty soup job.

Doc turned his drawings over to Clare Huard of the Custom and Classic Shop in Phoenix and told the man to get hot. He also turned over a mint-condition '50 Tudor Ford for raw material. Huard started by gutting the car. Then he took a four-inch slice out of the Ford's midsection, a fairly simple proposition on this particular model. The car was somewhat out of proportion after this operation so Huard went to work and sliced another three-and-a-half inches out of the top. The chassis was left stock except for a beefing up.

The hood was then welded solidly to the fenders and an engine access hatch cut into the top of the now solid bonnet. When it came to the grille, however, Doc found out that Huard wasn't as docile as the corner druggist. He got an argument; in fact he got several arguments. Finally an agreement was reached and Huard hand formed the grille from copper tubing which was then given a coating of hard chrome.

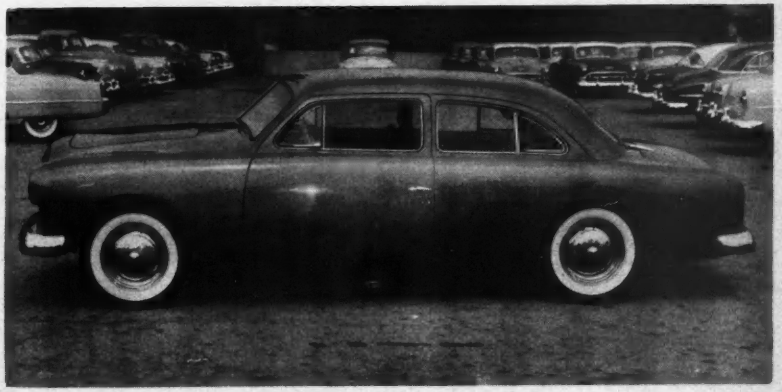
To be completely legal a car must have parking lights and in some states turn indi-

(*Continued on page 50*)



Ermie Immerso, upholsterer and partial builder, and associate editor Day discuss all the customized features. Car's radical lowness is apparent from height of people.

for Pleasure



Restyling was kept on a strict simplicity basis, with trim and chrome goodies being almost nil. Fenders are radiused and wheels completely chromed. Note contour of door.

Rx for Pleasure

(*Continued from page 48*)

cator lights. Considering the high price of antibiotics, Huard thought it only right to use plastic pill bottle caps for lenses for these. Doc, of course, supplied the caps.

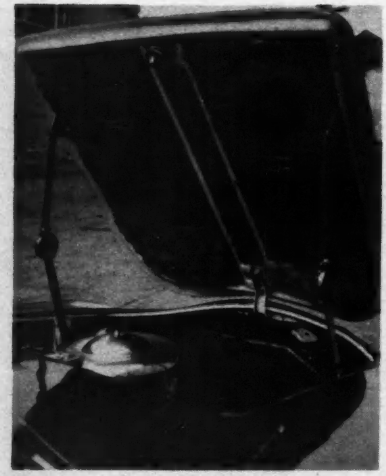
During the course of this work, Huard and the doctor thought of something that most cars lack and all hard tops should have—a roll bar. This was placed right next to the side posts and fastened securely to the frame. The stock Ford gas tank was removed and replaced with a 22-gallon Cadillac tank. The Caddy tank, though larger, is flatter than the Ford tank and improves road clearance.

With all the exterior body work done, the car was taken over to one Ernie Immerso who finished off the interior with a beautifully executed upholstery job in natural tan Naugahyde. The seats were chopped and the dash padded and equipped with Stewart-Warner instruments at this time.

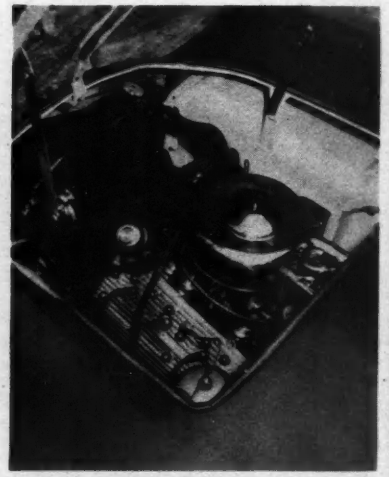
While all this was going on, Dick Morgensen's Engine Bearing Works was hard at work on a set of horses to lug the car around. The engine was bored an eighth of an inch and stroked to bring displacement up to 275 cubic inches. The flywheel was chopped and equipped with an Auburn clutch. The cam was ground in Phoenix and given a 45-degree overlap. Topping off the mill is a set of Weiand 8.5 to 1 heads and a Weiand four-throat manifold.

"The whole thing is an Arizona product," says Doc, "except for the engine balancing which had to be done in (ugh) Los Angeles."

(Hah! Little does he know how nice a living L.A. medics make just treating smog cases.—Ed.)

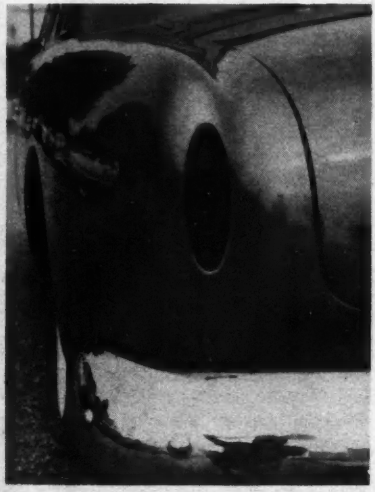


Hood hatch is reinforced with bracing and outer lip. Padding minimizes engine noise.



Engine is a full race Merc. Hatch pivots from front and uses stock latch at rear.

All the body paneling and seams have been filled-in and frenched. The special built grille was constructed from copper tubing and heavy mesh screen. Note pill box caps.



Taillights are stock items, but turned up vertically, a clever appearance switch.

Padded dash is equipped with Stewart Warner instrument panel. Seat frame is removed.

Garage Gimmicks

Photos by Dean Moon

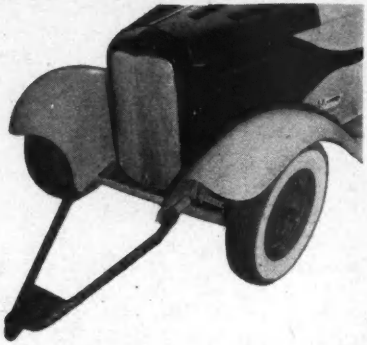
HOME MADE TOW BAR

OUR *Garage Gimmick* for this month will have appeal primarily for those who are competition minded. However, it will also have its uses for small commercial garage owners who must deliver cars to customers. Nothing is more frustrating than having to tow a car for even a few blocks without proper towing equipment. Quality of workmanship cannot be overemphasized in building this equipment; one slip or break here and the towed car can rapidly become a total washout.

Here is a towing unit that can be built cheaply and well from a '29 to '48 Ford front wishbone, a few pieces of flat ⅜-inch sheet stock and a commercially available trailer hitch and ball unit. Total cost of the unit shouldn't be much over $10, about half the price of the least expensive ready-made tow-bars.

The wishbone can be purchased sans axle from any scrap yard for about $2, maximum. Since the condition of the axle-purchase ends is not important, this figure should be absolute tops. The ⅜-inch flat stock can be found in scrap yards or in any well-stocked machine shop and the hitch and ball unit can be purchased from most any auto supply house.

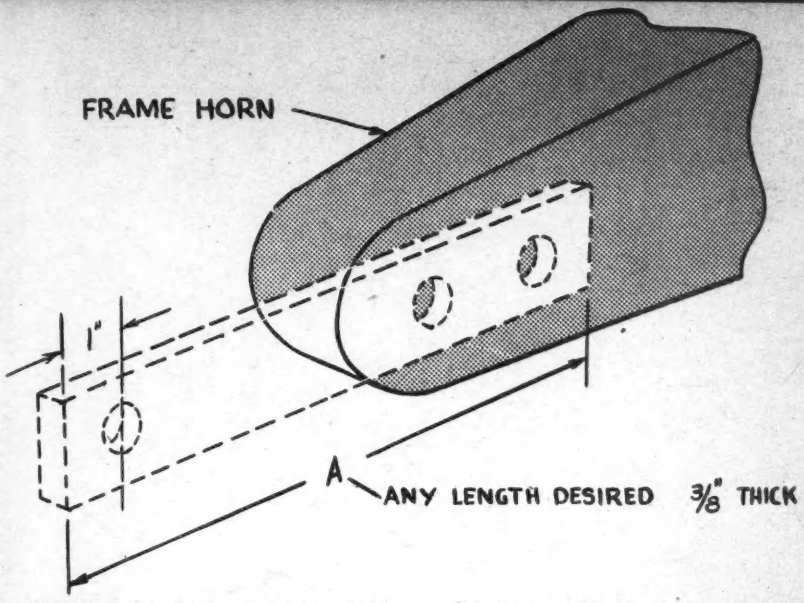
With all the components assembled, manufacturing can start. First, remove the ball end and both axle-purchases from the wishbone, cutting the arms of the wishbone back to the point at which the distance between the ends is the same as that between the frame horns of the car to be towed. At these ends weld two three-inch lengths of flat stock as shown in the drawings. At the apex of the wishbone weld an eight-inch length of flat stock shaped by flame cutting to the contour of the wishbone. This forms the mounting for the hitch. The hitch can either be arc welded or bolted, or both, to this plate, the method of mounting making no difference as long as it is secure.



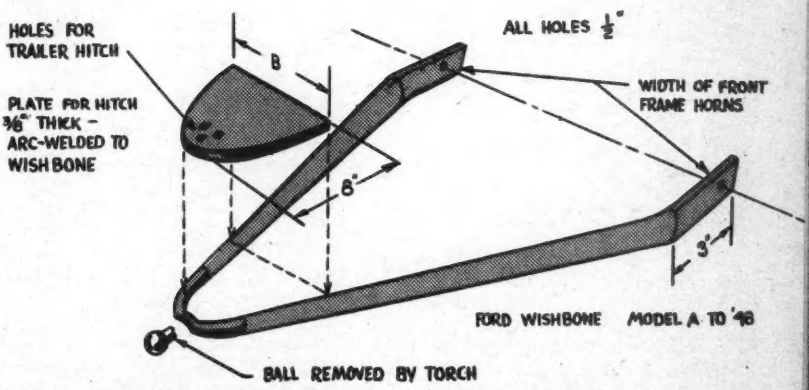
Ford wishbone tow-bar attaches very readily to the front end of a competition roadster which has been equipped with mount plates.

If the towed car lacks a bumper, two purchase plates must be made for attachment of the tow-bar. These are also made from ⅜-inch flat stock as shown in the drawings and can be made in any length or width.

Since the bumpers on most competition cars are flat or of the double-rail nerfing bar variety, bumper adaptors are simply made. Handy little gadgets, these make removal of the bumper unnecessary.



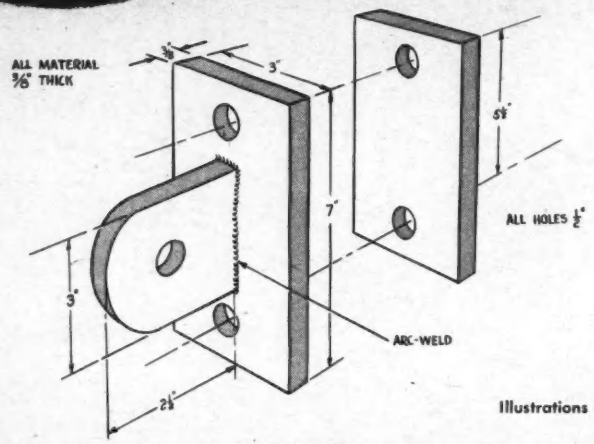
Mounting plate for bumperless competition car (see photo at left) is easily made from 3/8 flat stock. It can be any length desired but should be fairly short for stiffness.



Operations for building actual tow-bar can be seen here. Basis of bar is '29 to '48 Ford front wishbone cut to dimensions shown in drawing. Plate holds trailer hitch.

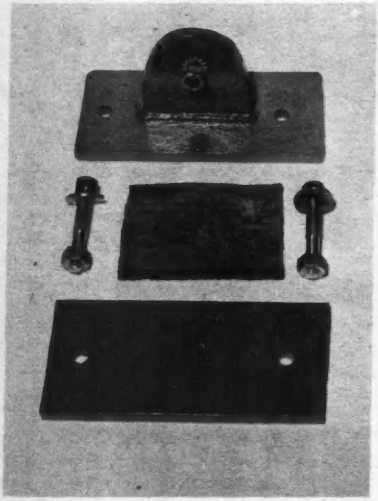
These adaptors are also made up from 3/8-inch flat stock. Two each of the pieces shown in the drawing are needed. To protect the bumpers from scuffing it is best to pad the inside surfaces of these adaptors with sheet rubber, cemented directly on the metal as shown in the photos. For use with later model bumpers with deep-radius curves, special clamps may be purchased from the same source as the hitch and ball units.

Garage Gimmicks continued

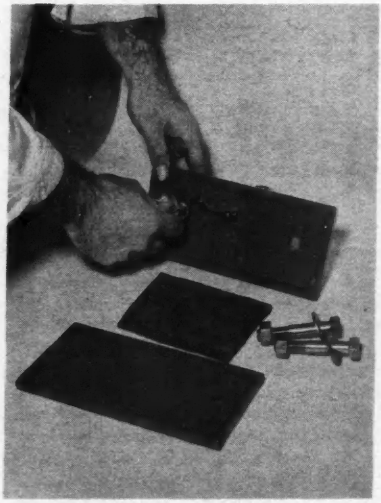


Illustrations by Don Fell

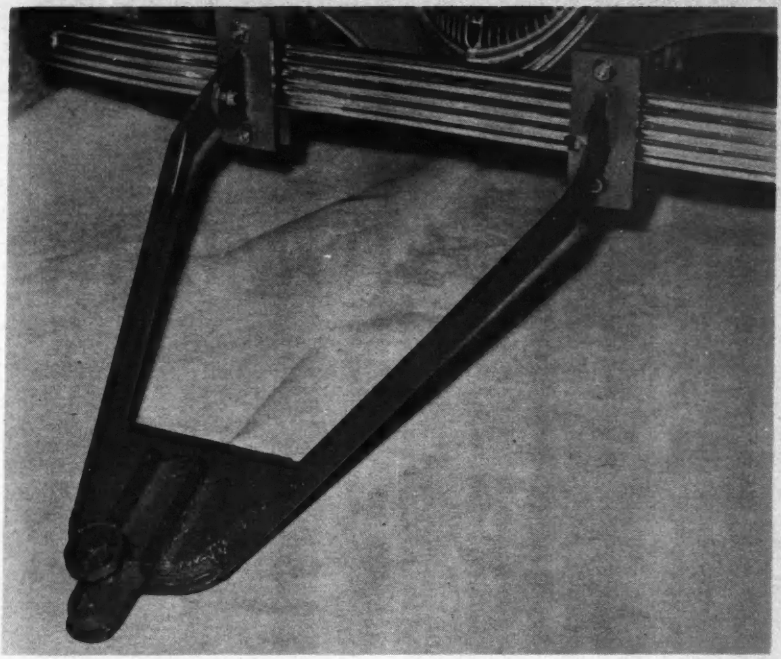
Bumper adapter allows use of the tow-bar without removing bumpers. This unit is suitable for use with any flat bumper or nerfing bar but not with late-model bumpers.



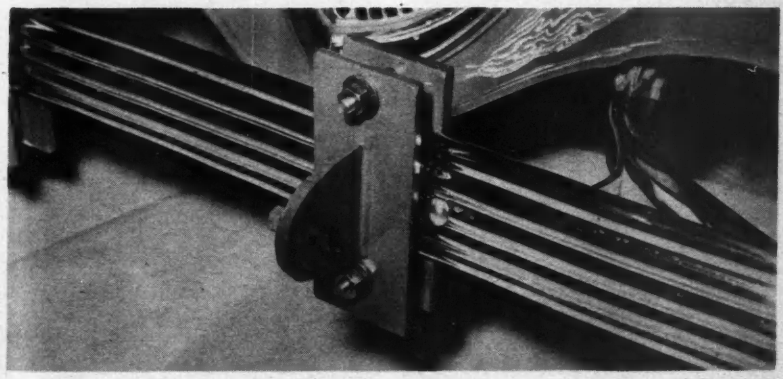
Units comprising bumper adapter are cut and welded from ⅜-inch plate. Rubber backing should be used to stop scuffing.



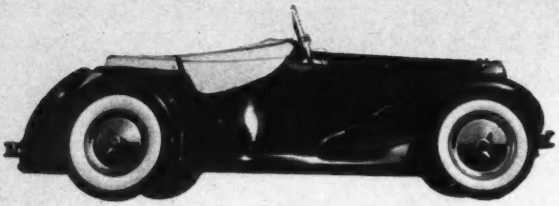
For permanence, rubber backing should be cemented to inside surface of one or both plates with permatex or auto trim cement.



Completely assembled tow-bar and bumper adapters are shown mounted on a De Soto fluted bumper on '34 Ford. Note that trailer hitch unit is bolted as well as welded to bar.



For clarity, bumper hitch adapter is shown here without the tow-bar. Adapter should be mounted as closely as possible to bumper mounting bolts for stiffness and control.



HERE'S HOW:

CUSTOMIZING

THIS is the first of several installments to follow monthly in CAR CRAFT magazine showing, step-by-step, how each feature was designed and performed on Jack Stewart's beautifully restyled MG. (P. 30 this issue.)

The articles will warrant close attention not only by MG owners who wish to ascertain how each innovation was accomplished, but also by all owners of prewar makes from '38 on back. These readers will also gain much valuable knowledge on restyling the classic design.

The customizing we deal with this month is filling in the recessed section at the tips of

1. Make a pattern template from cardboard for the exact fender contour you desire.

2. After cardboard template is correct, scribe pattern on 18-ga. sheet metal stock.

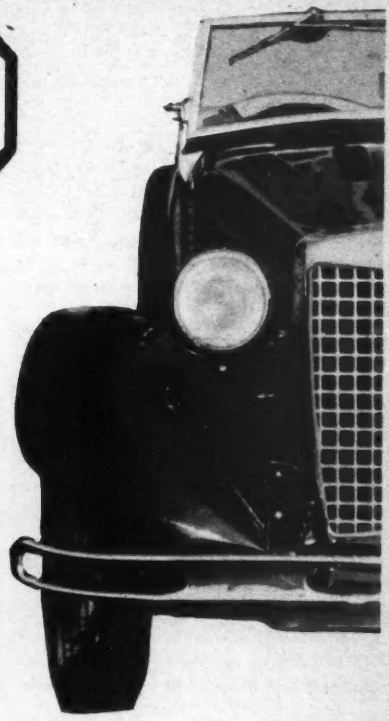
4. Cut and trim the new sheet metal plate to the new contour as exactly as possible.

5. After contour is correct, roll the leading edge of plate over to form a new bead.

Photos by
Eric Rickman — Felix Zelenka

THE MG

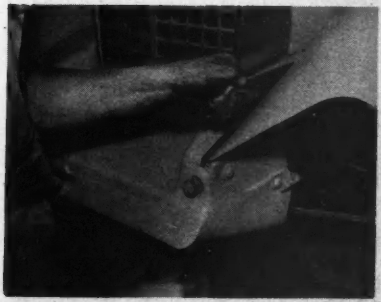
the front fenders. This feature applied to fenders of this type achieves two effects that are proving very popular: One, a bobbed appearance that is found on many street roadsters, and two, the ever popular "flared" fender appearing on many of the sports cars emerging hot off the boat.



3. Cut the scribed pattern section from the sheet metal and then trim to exact shape.

CONTINUED

6. When the rolled edge has been completed, make final fitting of plate to the fender.

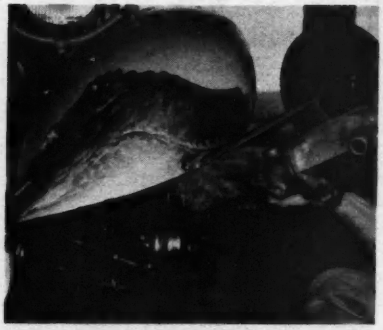


7. Before starting any grinding or torch work remove fender welt to prevent damage.

8. With a grinder equipped with a 24 grit close coat disc, grind paint down to the metal approximately 6" back from the edge.

9. With the area completely ground down, now clamp the new plate into its position.

12. Weld plate and fender together solidly. Hammer and dolly can be used on low spots.



13. Smooth weld bead with grinder and contour the fender and the plate's outer edge.

16. A coarse-tooth vixen file is now used to smooth the working area. Once the lead has been smoothed and fender contour is correct, hand sand the fender with dry 80 grit paper, feathering all the painted areas.

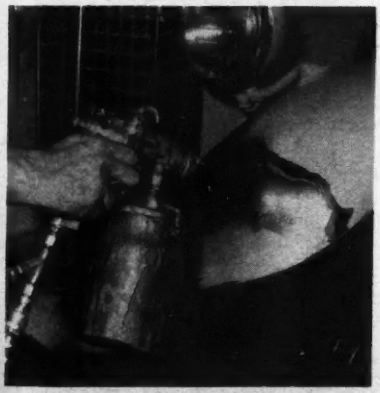
17. With area thoroughly sanded smooth, apply metal prep, wipe dry with clean cloth.

10. Spot weld plate at 2" intervals; this will assist in holding warpage at a minimum. Cooling heated area with a wet rag will also help in minimizing metal warpage.

11. Before welding plate solidly to fender, line up the joining edges of both pieces.

14. With an electric drill equipped with a rotary brush, clean welded area thoroughly.

15. After working area has been completely cleaned, apply tinning compound. Lead is now applied and smoothed with oak paddle.



18. Surface is now ready to prime. Several coats may be needed to cover file marks, etc. However, let each coat dry before respraying again for assured adhesion. First primer coats are block-sanded with 280 paper (wet). Second coat is sanded with 360 (wet). Area is now ready for finish paint.

NEXT MONTH

Solid Hood Side-Panels

HOT ICE

(*Continued from page 15*)

signed for a Ford ring gear and starting motor was adapted to the crankshaft. Four of the eight drilled flywheel mounting holes in the crankshaft flange were enlarged to 29/64 of an inch and threaded with a ½ inch, 20 thread tap. These four tapped holes and suitable capscrews are used to secure the flywheel to the crankshaft. The only apparent advantage to this method of retaining the flywheel is ease of installation. Stock Dodge flywheels are ordinarily retained with eight ⅜ of an inch bolts and nuts, with the nuts on the forward side of the crankshaft flange. This is a sufficiently sturdy arrangement but flywheel installation in a boat is somewhat difficult due to the cramped quarters between the flywheel and oil pan.

Rotating and reciprocating parts of the engine, including the crankshaft, connecting rods, pistons and pins, and flywheel, were statically and dynamically balanced by Weber Tool Co., Los Angeles. If a V type engine is to run smoothly at all speeds, rebalancing of its crankshaft and connecting rod and piston assemblies is absolutely essential after weights of any of the parts, or the crankshaft's stroke, have been changed from stock. As a precautionary measure the parts in the crankshaft and piston assemblies were inspected for flaws by Magnaflux and Zyglo methods.

Intake and exhaust ports and passages in the cylinder heads were enlarged by grinding and polishing. Oversize valves were installed with stock valve springs and keeper washers. Combustion chambers in the heads are machined at the factory to equal capacities; therefore they did not require any additional machine work other than that done to the valve seats. A Winfield Super grind flat-tappet camshaft operates the valves through Studebaker non-hydraulic cam followers and Howard adjustable pushrods. Valve lift is .410 of an inch; spring pressure with this lift is 160 pounds, valves open. Rocker arms are stock. Intake and exhaust valves operate with .015 of an inch lash. Stock steel and asbestos head gaskets, coated with aviation Permatex, have been found to be entirely satisfactory; however, Carl torques the head retaining capscrews to 100 foot-pounds, which is considerably tighter than the stock specified tension of 80 to 85 foot pounds.

Present A.P.B.A. rules state that not more than one single-throat carburetor can be installed for each two cylinders of an engine to be used in the crackerbox division. According to this, four single-throat carburetors, or two dual-throat carburetors, or one four-throat carburetor are all that would be allowed on an eight cylinder engine. Constant-flow fuel injectors of the Hilborn type are not allowed. To comply with this rule Carl equipped his engine with two Stromberg 97 carburetors on an Offenhauser two-carburetor manifold. The venturi tubes in the carburetors were enlarged from their stock 31/32 of an inch diameter to 1⅛ inches to allow a greater quantity of air to flow to the engine's cylinders. But even with their bored-out venturi tubes these carburetors do not have an adequate air capacity for the engine. However, they will have to suffice until something better becomes available or the A.P.B.A. changes its rules. The exhaust system used in the boat consists of individual 1¾ inch inside diameter exhaust pipes for each of the engine's cylinders. The pipes extend straight out from the sides of the engine and protrude through holes cut in the sides of the hull.

The ignition system is comprised of a Scintilla Vertex magneto mounted in the stock distributor location. The magneto provides a maximum spark lead of 36 degrees at engine speeds above 3000 revolutions per minute.

Carl made several test runs with his engine on the Clayton engine dynamometer at Wilcap Company, Los Angeles. Although A.P.B.A. rules permit only gasoline fuel for overhead valve engines and 2 two-throat carburetors or their equivalent, Carl checked the engine's horsepower output with three different carburetion setups. These included a Hilborn fuel injector calibrated for straight methanol; dual Stromberg 48 carburetors, jetted for methanol and bored-out to 1⅛ inches, mounted on an Offenhauser two-carburetor manifold; and the previously mentioned dual bored-out Strombergs 98's jetted for 145 octane gasoline, also on the Offenhauser manifold.

Results of all three tests were truly out-

(*Continued on page 64*)

RED HOT RETREAD

(*Continued from page 47*)

Herbert 285 roller tappet cam was fitted and the entire assembly was balanced. Stuffed onto a dynamometer, this bear was putting out 250 horsepower at 5500 rpm when the mains let go.

The whole balancing procedure was gone through again and new main caps were punched out of heavy blocks of cold-roll steel. This time it held together on a short run-in. The engine was then adapted with a motor plate to the Maserati bell housing and remote, rear-end mounted gearbox. The nice thing about this arrangement is that the drive shaft rotates at the same speed (engine rpm) in all gears.

One big feature widely hailed today as "the latest thing" is the ball-joint front suspension which dispenses entirely with kingpins. These ball-joints are fully adjustable by means of threaded and keyed sockets, going the "modern" manufacturers one better. The front torsion bars were originally designed to be adjustable by means of threaded clamps at their fixed ends but for reasons which will become apparent later, this is now being changed to the more modern method of using a small splined arm and set screw arrangement similar to that of the Kurtis. Aside from this, the only other change made in the suspension was the addition of an extra leaf in the rear springs to take care of the extra weight added by the switch from track car to sports car.

The reason for this change, Gene says, is that under heavy acceleration the car develops a definite negative camber effect at the rear end which has a tendency toward tire slippage. The extra leaf eliminates this fault.

Meltzer, meanwhile, was building an aluminum body for the car. No jigs or expensive dies were used; the whole thing was laboriously pounded out by eye and hand alone—strictly a labor of love. The Palm Springs race was coming up and there was no time to waste. No more dyno checks, no time for anything but assembly. On final assembly it

(*Continued on page 66*)

LIL' BEEP By Dick Day

"Look Pop . . . I don't wanna be an "I-told-you-so," but this job don't have enough suds to pull a wet gum drop out of a baby's mouth!"

"GRAB BAG"

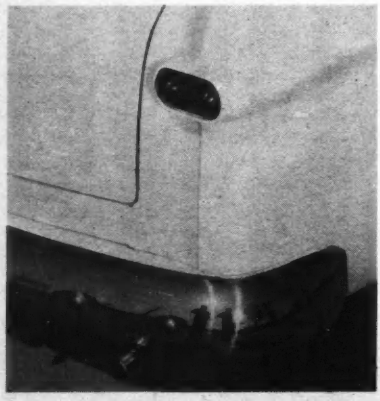
Photos by Rickman & Zelenka

FRED DeMARTINI, OWNER
BODY WORK BY DeMARTINI

A favorite among backyard designers is the removal of stock taillights from the '50 or '51 Merc and tunneling or frenching another product. The wide, extended fenders will accommodate many models. These are from a '51 Lincoln.

JOE SIEGFRIED, OWNER
BODY WORK BY PETE

A step just beyond the point of incorporating part of another product for taillights is this Ford. The center of the stock lens was removed, and fitted to the inside ring is a '51 Olds lens. The housing was then frenched.



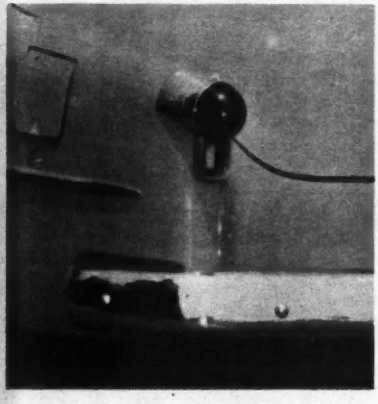
DON FERRARA, OWNER
BODY WORK BY FERRARA

Installing '52 Buick lenses in a '49 to '51 Ford taillight opening requires a minimum amount of metal work. This model lens also works very well on '51 to '52 Chevrolet fenders when installed in a vertical position.

THE rear aspect of a customized car is fully as important as that of the front. This being the case, we feel that it is only right that we follow last month's grille feature with one having to do with taillights. Herewith we present six different methods of reworking the tail glimmers.

LOUIS BETANCOURT, OWNER
BODY WORK BY BARRIS

An all-out designing effort was made on this '49 Mercury for originality and disguise. The slit-type plastic lenses were cast from an original mold with correct fender contour. After installation, they were completely frenched-in.



JACK WILKINS, OWNER
BODY WORK BY COMSTOCK

Adding more length appearance to a '52 Chevrolet can easily be accomplished by adapting this type of taillight, or a similar unit from another make. This particular taillight is from a '51 98 Oldsmobile.

PAUL MILLER, OWNER
BODY WORK BY MILLER

On prewar cars the possibilities of taillight styling becomes somewhat limited. A nice effect can be reached, though, by removing the taillights and molding in units comparable to these. The car is a '41 Ford, taillights are from a '48 Ford.

HOT ICE

(*Continued from page 60*)

standing. The most impressive, of course, was the run with the Hilborn injector-methanol combination. Maximum horsepower attained on this run was 302 at 5800 rpm. At 5500 rpm the engine developed 300 hp. With the propeller Carl is using on the boat at the present time the engine turns 5800 to 6000 rpm's when racing.

For the second test the fuel injector was replaced with the dual bored-out 48 Strombergs on the Offenhauser manifold. The fuel was straight methanol. Maximum horsepower with this setup was 270 at 5500 rpm. As the difference between 270 and 302 is 32, the horsepower boost provided by the Hilborn injector over the two-carburetor setup amounted to 11.8 percent. This cannot, however, be considered a true comparison of the two types of carburetion systems because the engine was definitely under-carbureted with the dual carburetors. With three carburetors instead of two, or with two carburetors with larger venturi areas than are possible in the Stromberg 48's, the difference in the horsepower results would undoubtedly have been less pronounced. It is almost a certainty, though, that horsepower out-put to match that made possible by the unrestricted breathing of the Hilborn injector could never be matched by a conventional carburetor and manifold setup, regardless of the number or type of carburetors employed.

On the final dynamometer run, made with dual carburetors and 145 octane gasoline, the engine developed a maximum of 258 hp at 5700 rpm—exactly one hp for each cubic inch of the engine's displacement. The comparatively slight horsepower boost of 4.6 percent obtained with alcohol over the 145 octane gasoline attests to the quality of this gasoline, which is far superior to the pump grades available to motorist. Fortunately, fuel of this type can be used in A.P.B.A. competition engines restricted to gasoline. If the rules specified pump gas only, the fellows with overhead valve engines would lose some of their advantage over the alcohol burning flatheads.

By this time it should be apparent to all who are interested that overhead valve engines are here to stay.

TRIALS FOR THE U.S.

(*Continued from page 17*)

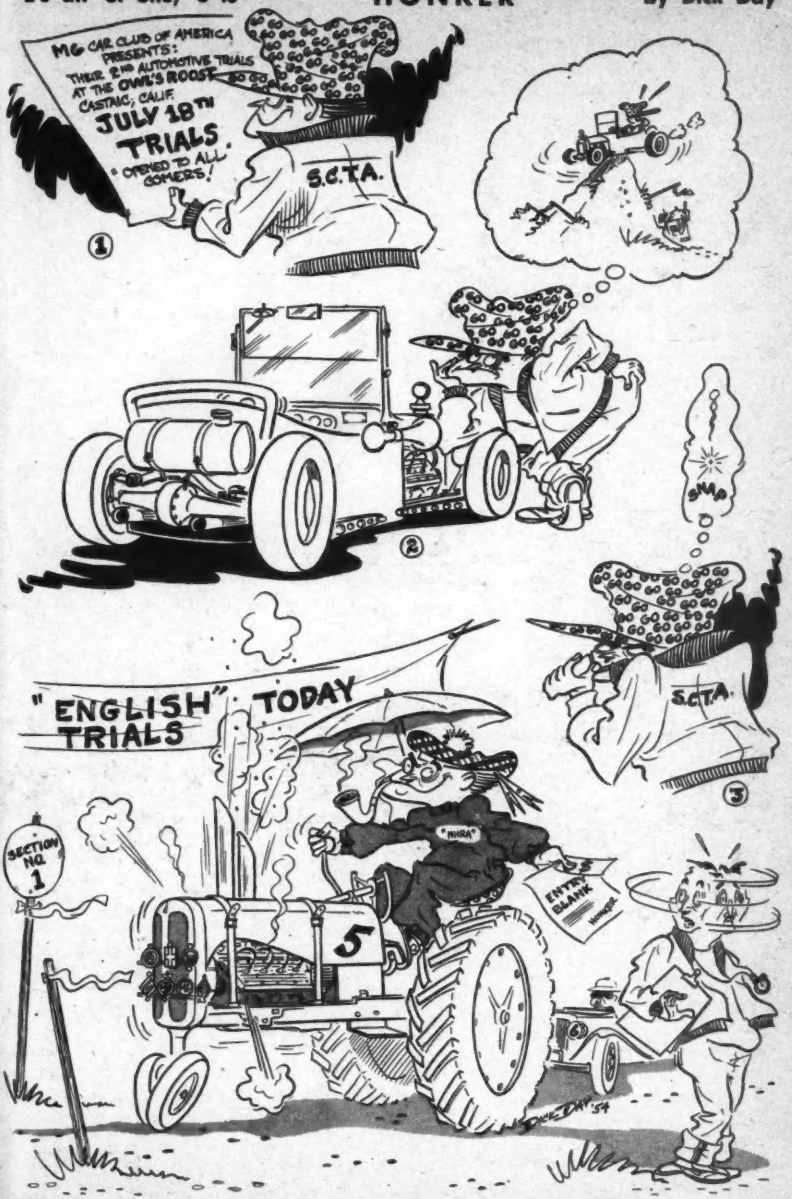
The run itself was conceived by Club President Rod Willson and members Tom Flaherty and Bill Herrin, who put considerable research into the project, writing to England for rules and modifying these rules to fit American cars and terrain. Picking the Owls Roost on the Stanley Ranch, an old trials area for the bike clubs, the crew laid out a series of five "observed sections" connected by short trails. To lay these out fairly, several types of cars were used: MG's, a Cad-Allard, a modified Jaguar, a Porsche and a Volkswagen. By using these various sizes of cars the course was made fair for all and there was no need to break the cars down into engine classes. Safety for spectators was kept at a maximum, with disqualification of an entrant or huge loss of points the penalty for any infraction of the rules. Points were knocked off for each second in an observed section, knocking down one of the multitude of course markers, losing forward motion, reversing, failing to attempt or complete a section, for the passenger being in an illegal position and finally for failing to stop at the end of a section. (*More about these rules in a later issue.—Ed.*)

No driver was allowed to walk around the course before the event, the element of surprise being one of the main objectives. Foreknowledge of the course would have given an unfair advantage since many of the turns came immediately after a hill or dip had been made.

Public liability insurance for the event was only $100, a reasonable figure since 1000 spectators paid 50 cents apiece for admission and each car owner paid a nominal entry fee.

Since we feel that Americans have been missing out on an activity that can be held anywhere, any time, we have scheduled a series of features for early issues detailing rules for trials, how to lay out a course and last but by no means least, suggestions on how to build a trials car for anywhere between $100 and $500 depending on the power plant and chassis used. Head for the hills, folks.

"'E's an 'ot one, 'e is" **HONKER** by Dick Day



"CISCO SAYS"

(*Continued from page 4*)

cylinder with excessive quantities of exhaust gases, creating a slow burning mixture and causing the engine to run roughly and develop a poor power output.

Camshafts are ground to various degrees of overlap and to provide higher than standard valve lift. High valve lift alone will, up to a point, improve an engine's performance. This has been proven by the installation of high-lift rocker arms in combination with stock camshafts. In these cases valve timing and overlap remain the same but the valves open farther. Horsepower is improved throughout its range but the engine's peaking speed remains practically unchanged. To raise the engine's peaking speed, valve overlap is increased, but as overlap is increased, low speed performance becomes more and more affected.

Because it's only human nature to "get all you can" for hard earned dollars passed over the counter for a piece of merchandise, it's understandable that a fellow will take a Super grind camshaft in preference to a ¾ when each carries the same price tag. A Super grind just naturally sounds like more for the money than a plain ¾, but the trouble lies in the fact that a ¾ grind may be exactly what the fellow needs and the Super is not at all applicable in his particular case. Actually, the problem is of a purely psychological nature. Perhaps if reground camshafts were listed only by numbers instead of by high sounding names the purchaser would be more apt to take home a product suited to his needs.

When choosing a camshaft for your road car, drag wagon, Bonneville streamliner, boat, or what have you, discuss the merits of the available grinds with the man who reground the shaft or the dealer with whom you are dealing. The advice of these persons can, in nearly all cases, be followed with utmost confidence because it is to their interest as well as yours that you be pleased with the performance of the products you purchase from them. And, above all, remember that you are buying a type of performance, not just a fancy name.

Don Francisco

RED HOT RETREAD

(*Continued from page 61*)

was discovered what was meant by the "55-45 Formula." Complete with driver and fuel, 55 percent of the weight was on the independently sprung rear end, 45 percent on the torsion bar suspended front end. This was considered close to the ideal during the time that Grand Prix racing was in its pre-war heyday. Although the modifications done by Gene and his crew had raised the weight of the car to 2200 lbs., the balance had been changed not a whit.

Came race day at Palm Springs. The car was put on the course for practice with Josef Sefcik, another member of the crew, who had previously raced motorcycles in his native Czechoslovakia, as driver. The car exceeded Gene's fondest hopes, going through the turns as if it were on rails and accelerating like a dragster. Top speed was approximately 145 with the 3.385 gearing in the rear end. During the race itself, the car lapped at a reported two minutes, 18 seconds. One unforeseen circumstance forced the car out after five laps—the front torsion bars slipped in their mounts, causing the car to dive. The eventual winner of the race was Sterling Edwards in a 4.1 Ferrari in which he lapped the course at two minutes and 20 seconds.

Total cost of the Chrysler Maserati as estimated by Gene was slightly under $4,000, about one-third the cost of a 4.1 Ferrari or similar car and about equal to the price of a good track roadster!

When talking to Gene later, he pointed out that while there are only three other Type RI Maseratis like his, there are several hundred race cars of middle and late 1930 and middle 1940 vintage, other types of Maserati, Alfa Romeo, Sparks, Miller and even a 750 Kg Mercedes, still unfound in garages and shops around the country. These cars have been honorably retired from championship racing and rest unused. While unsuited for professional racing, they still can form the basis for sports cars which can be made the equal of the best running today through the use of hot rod practices and at far less expense than would be required for the hotter varieties. All it requires is a little perseverance.

GO, man!

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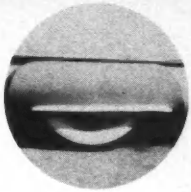

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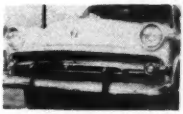

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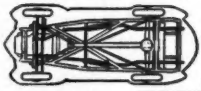

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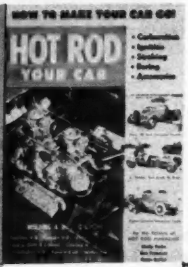

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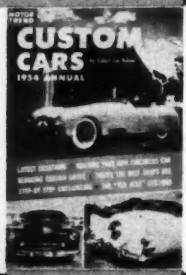

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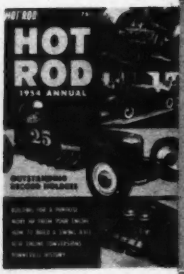

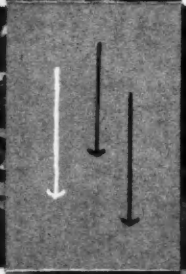

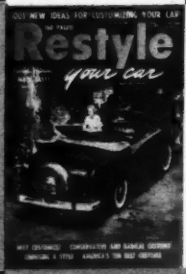

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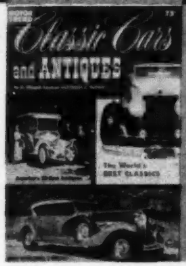

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